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Overdone

THERE is a widespread movement, as we anticipated last week, to check and modify the first effects of war legislation. The eleventh hour postponement of the rationing of petrol shows how willing and anxious is the Government to save as much of the normal life of the nation as is compatible with the efficient conduct of hostilities. We were much relieved when the authorities lost no time in explaining the wholly provisional nature of the Commodity War Risks Insurance Scheme. The maintenance of a similar attitude towards a great deal that was done with commendable promptitude on the first outbreak of war, is assured if traders play their part in making their case known. War is a State affair, the individual becomes the slave of the State for the duration and no personal considerations, however proper in times of peace, have any standing so long as war lasts. That, however, is not to say that the wise State in its own interests should not do everything in its power to maintain the strength and position of the individuals from whom alone the State itself can derive its own power.

One of the many early statements of policy laid it down that the Government would rely upon the natural decline of non-essential trades to release resources for expanding re-armament. Instead of relying upon any natural shrinkage, however, steps were in fact taken to destroy artificially a large part of our trade, essential as well as non-essential. If military reasons really require the black-out on the present comprehensive lines there must be no complaint. But we wonder whether the validity of the military reasoning has been tested in the light of the economic consequences. The habit of the average person is to earn during the day and spend during the evening, and a very large proportion of the total national turnover takes place between the closing of the office or factory and the time of going to bed. That proportion, whatever it is, was removed from the trade of the nation, by a stroke of the pen. It concerns much more than theatres and cinemas. There are half a million shopkeepers who cannot pay their rent, rates and taxes out of the daylight hours alone, and if the shops fail to function the factories close their gates. The decline of the non-essential as well as the essential trades has been so rapid as to release resources beyond the present requirements for re-armament and in consequence a good deal of unnecessary unemployment has to be put to the cost of the State.

We confess that we were taken by surprise when without any warning Government Departments produced, ready made, some forty Acts of Parliament designed to put us on a war basis. Both Parliament and people were, at first, gratified at this wonderful display of preparedness and Parliament having high matters of policy to deal with in a hurry, very naturally passed almost without comment legislation which in other circumstances would have needed years of debate and amendment. In 1914-18 we had the celebrated D.O.R.A. and we are not yet wholly rid of her totalitarian ways. The fourth of September, 1939, will be remembered as the day when the elderly "Dora" gave birth to forty little " Doras," causing every business and professional man as well as every worker to wonder whether he would ever be allowed to function again. The widespread nervousness arising from this litter of legislation is evidenced by the dividend announcements of the past fortnight. Headed by no less an institution than the Prudential Assurance, large numbers of companies have cut or passed their dividends. These dividends in every case refer to periods closed well before the war clouds burst and reductions are justified only on the ground that the businesses are threatened by the greed of the departments to control and even conduct as much as possible of the work of all of us.

War brings its injustices, they are among its minor consequences, but let us be sure so far as we can that they arise from the exigencies of war and not from the ever present desire for bureaucratic expansion. The Commodity Insurance scheme is a typical example of the workings of the bureaucratic mind in fields beyond the range of its comprehension. Six per cent. per annum is a charge of ten shillings per cent. to the concern which turns its stock as rapidly as once a month, but it means perhaps as much as twenty-five pounds per cent. to better class or slower moving commodities. Many a business has, within the last few days, paid out a compulsory levy at a rate in excess of its annual profit. The business man has to remember that this is only one of a thousand provisions contained in the forty little " Doras," and he is forced to enter a definite protest.

CONTENTS

Notes and Comments	224
Production of Liquid Fuel ...	225-226-227
Prohibition of Exports	227-228
The American Chemical Society	229-230-231
The British Chemical Industry	232
Personal Notes	233
General News from Week to Week	234-235
Weekly Prices of British Chemical Products	236-237

NOTES AND COMMENTS

The Coal Utilisation Council

IT has been decided that the technical work carried out by the combustion engineers at the various branches of the Coal Utilisation Council—particularly their service of advice and assistance to consumers to ensure the utmost economy and efficiency in the use of fuel—shall be continued for the present as far as circumstances permit. The publicity and propaganda work of the Council is being discontinued and the activities of Area Committees will also be suspended. The National Coal Convention has been cancelled, but the sales training courses will be continued, including the continuation course, of which a new series will start on October 1. The written examinations, however, are temporarily suspended. Several of the head office staff have already been called up for military service or for work under the Mines Department, and the head office at Grosvenor Gardens House, London, will shortly be closed. For the present, however, communications may be addressed there to the secretary, Mr. J. S. Williams, who is in administrative control of the skeleton staff. A further announcement will be made shortly as to his address after the closure of the present head office.

Filling Up Forms

WHAT was both a nuisance and a joke in the last war—" filling up forms "—is rapidly returning. In a letter to *The Times* on Tuesday, Sir Alfred Herbert pointed out that a large part of the national effort is already being diverted from its essential work to filling up forms "of harassing complexity and full of questions which are often totally irrelevant." When a Government department takes control of an industry, he said, the first thing that usually happens is a state of confusion and delay pending the issue of forms. Doubtless some of these forms are ultimately necessary, but broad instructions of policy should be issued first, so that mass effort may be guided in the right direction until more detailed control is set up. It should be remembered that no statistics are of any value unless they form a basis of useful action. Every business man will echo Sir Alfred's plea that forms should be as simple as possible, and free from every question which cannot be answered readily.

Not So Efficient

COMPETITIONS in business efficiency are less popular in this country than they used to be, though the love of setting up records still flourishes in America. They appear to find nothing unusual in skipping for days on end, or in seeing who can eat the most ice cream with a red-hot spoon. The latest achievement of this kind is the victory of a U.S. team of typists over a Canadian team in a fortnight's typing contest, the whole of Shakespeare being chosen as the text. The winners are reported to have typed 1,664,998 words on 7,500 sheets of paper, beating the Canadians by 40,000 words and 200 sheets. Whether the competitors could afterwards have passed an examination in the famous plays seems doubtful, as even the winners made 68,000 mistakes!

Trading with the Enemy

A SHORT time ago British traders were warned by the Board of Trade that it was unlawful to transact business with enemies and that offenders against this requirement would be liable to heavy penalties. The various clauses contained in the announcement made by the Board of Trade included an injunction "not to pay, lend or send money, negotiable instruments or securities to or for the benefit of an enemy, or to a place in enemy territory, or enter into, continue or complete any transaction which will enable an enemy to obtain money or credit, or any transaction which will release an enemy from an obligation to pay money." Another order has been made specifying 278 persons, including firms, carrying on business in various foreign countries, who shall for the purpose of the Trading with the Enemy Act, be deemed to be enemies. This list includes Krupp (Hellas) S.A., "Krupp" Sociedad Metalurgica Argentine, S.A., Krupp's Reedery-En Transportbedrijf N.V. Fried., Soya Company, Bucharest, Rumania, the "Soya" for the production and export of Oleaginous Seeds Co., Ltd., Sofia, Bulgaria, Bayer, La Quimica S.A., Buenos Aires, Chimica Bayer Limited, and A.G.F.A., Rio de Janeiro, Casa Chemica "Merck" Brazil S.A., and Victoria-Linoleumfabrick A/S.

Germany's Search for Metals

FOREIGN trade figures of the Reich for last year make interesting reading, for they direct attention to the search which Germany must now make for metals. They show that from France and Britain and their Empires Germany bought 26 per cent. of her raw iron, 33 per cent. of her lead, 50 per cent. of her chromium, 62 per cent. of her copper, 61 per cent. of her manganese, 94 per cent. of her nickel, 60 per cent. of her zinc and 52 per cent. of her rubber. According to a Reuter message from Brussels, published in *The Financial News* this week, Germany must now try to get lead and copper from Yugoslavia, chromium from Greece and Turkey, iron and zinc from Spain, and copper from Sweden. Almost the only mineral the Soviet Union can supply is manganese, and no European country can supply nickel or rubber. "Supposing that neutral countries can increase supplies to the Reich without violating their neutrality, how will Germany pay," questions *The Financial News*. "She apparently intends to export coal, but her domestic coal consumption is going to be enormous." Last year Germany bought almost half her iron ore from Sweden. As Swedish iron can be exported to Britain almost as easily as it can to Germany, Germany would get Sweden's total output only if Britain were unable to deliver coal or could buy the ore in some other way.

Black-out Remedy

THE introduction of a luminous fabric manufactured by a Bradford firm of research chemists was reported last week in a Bradford newspaper, which stated that the material gives a pale blue glow in the dark, and pieces may be fastened to gas-mask containers, clothing, doornobs, keyholes and switches or used in any other manner to facilitate sight in darkness. The advantage of luminous materials during this period of ruthlessly efficient black-out will be readily appreciated by A.R.P. workers and others whose misfortune it is to work in the dark. A London firm, Messrs. Thomas Tyrer & Co., Ltd., who recently announced the marketing of a luminous paint which, though visible at close quarters, is quite invisible at a range of 40-50 yards, stress that in times of black-out it would be of great value to householders, A.R.P. workers, firemen and others engaged in Civil Defence, to be able to locate without difficulty certain key points in their scheme. Luminous materials are obviously one of the keys to the problem.

PRODUCTION OF LIQUID FUEL

" Electric Carbonising Process Can Assure Britain's Supply "—American Claim

By

H. STEVENS (Cincinnati, Ohio, U.S.A.)

THE electric carbonising process is a way to make coke, gas, and oil from any bituminous coal by using electricity to heat a stationary mass of coal from within. The heat is generated always adjacent to the raw coal and is propagated radially outward until the entire mass is carbonised.

One type of equipment used to do this " . . . consisted of a vertical steel-clad brick-lined retort with an internal diameter of 6 ft. and an effective height of 40 ft. Centrally in the top and bottom covers were fixed carbon electrodes, which could be connected by a pipe filled with broken coke placed in the axis of the retort. This pipe with its contents served as a conductor to start the process. The retort, which held about 30 short tons of coal, was fully charged and alternating current at 400 volts from an 850-kVA variable ratio transformer was switched on to the electrodes." (*1*).

The present crisis makes tragic the comparative failure, from the economic standpoint, of Britain to become self sufficient in respect to her supply of liquid fuel. With this in mind we submit the following article based upon facts obtained handling American coals in a novel way, and upon the data concerning British coals available where the article was written. The process under discussion offers a means by which Britain may be assured a supply of liquid fuel. The process is of deep economic interest to the coal industry and the related industries of coke and gas production. Also it is momentous to the electric generating industry because its use will stop the enormous waste resulting from generating equipment deteriorating through disuse.

This form of equipment was used by the Detroit Edison Company to prove the possibilities of the electric process on a commercial scale. It was developed to make coke, gas, and oil, for which markets already existed. Different equipment can be used to meet other market conditions.

Some may think the electric process would not meet with favour in Britain because of the erroneous idea that electricity cannot be generated at a price low enough to make the process economically feasible. For instance it was stated " . . . it would be necessary to purchase electricity at not more than 0.125d. per unit if the process were to be considered." (*2, 3*).

The fact must be borne in mind that the electric process can be so carried on as to use *off-peak* electricity—the cost of this is only the cost of the coal, oil, water, and stores used, plus the cost of repairs and maintenance incidental to its generation. Enough off-peak electricity is available in Britain to carbonise all the coal used in the raw state. Therefore, the cost of electricity cannot be an obstacle to the use of the electric carbonising process, for the cost of generating off-peak electricity per unit in Britain is less than 0.1d. (*4, 5*). At that price the cost of the electricity used (379 kWh) to carbonise one long ton of moist coal is 3s. 1.9d. The fuel costs for other coal carbonising processes are given at 4s. (*2, 3.*) Thus, for every ton of coal carbonised by the electric process there is a money gain of 10.1d.

Low cost electricity is not the only factor which makes electric carbonising profitable. Triple assurance of profitability is seen when consideration is given other elements affecting carbonising costs, and when due credit is given to the value of the ultimate products.

The first of these is: The investment, the maintenance, and the operating costs are lower in the electric process than in other processes, as has been granted by those who have given the process some thought. (*6*). Seventy-five per cent. less land is required; a retort housing is unnecessary; less expensive material is used in its construction; the quantity of material needed is less than in the construction of other plants; no cumbersome coke pusher nor mechanical extractor is needed; less gas handling equipment is required in the electric process for the gas leaving the retort is scrubbed and cooled by passing over the cold coal in the retort. Because of the flexibility of operation, which enables the process to promptly meet consumers' changing demands, the gas holder is smaller than that required by other processes. The elements of construction of the electric process are simple; much of the equipment is shop fabricated and easily erected by inexpensive labour.

Years of operation of the electric process show that the wear on the firebrick lining and graphite electrodes is practically nil. None of the other equipment is subjected to high temperatures. The materials handling equipment is compact and not spread over a wide area as is necessary in other processes. The results are that maintenance costs are lower in the electric process. (*7*).

Because the electric process carbonises a stationary mass of coal in retorts of large capacity, the operation of which is conveniently automatic, labour for operation is at a minimum.

All of these savings are possible with the electric process, because it carbonises coal on a mass production basis, an accomplishment hitherto declared to be " impossible."

While numerical values are not here assigned in detail to these savings, the published figures on the investment, the maintenance, and the operating costs of coal carbonising (*9 to 44*) indicate that the electric process can effect economies in these items that will result in a reduction in costs amounting to 4s. for every ton of coal carbonised.

The second of the three bases of assurance of profitability in the process is in the values of the ultimate products of electric carbonising. How do these compare with the values of the ultimate products of other processes?

The figures show that from a ton of coal carbonised by the electric process the amount of saleable coke is 3 cwt. per ton of coal more than from other processes. (*9, 10, 11*). The coke is also superior in quality. This superiority of both quantity and quality is attributable to the inherent electric characteristics of the coke and of the process itself.

Electric coke is all heated to the same temperature—about 1,000 C. In other processes the coke next to the walls is heated about 350 C. higher than that in the centre of the charge. Experience shows that the higher the temperature to which coke is submitted in a retort the more graphitic it becomes and, therefore, the harder to ignite and consume later. The quality of unevenly heated coke is further impaired by the impingement of flue gas on it through the leaky retort walls. In the electric process a gas tight steel shell makes leakage impossible either in or out. This shell actually makes it possible to charge the retort completely with a mass of coal. There is no room for the coal to swell and froth. No movement of the coal occurs to make the coke friable and spongy. (*12*). Electric coke is therefore all tough and firm, being neither glassy hard nor spongy soft. For these reasons electric coke has uniform burning characteristics. It ignites easily and responds to the draft readily. Because of its density it does not burn flashily as does

the lighter weight coke resulting from other processes, but holds a fire which does not require frequent refueling. Because the saleable coke is 3 cwt. more and the quality of all the coke is superior from each ton of coal carbonised by the electric process, there will be a profit of 4s. more than from saleable coke of other processes.

The quality of electrically produced gas is also superior to gas made by other processes. This is seen from the analyses and yields of gas from similar coals carbonised by the continuous vertical retort (Mitchell Main Gas Nuts, D.), as compared with the electric process (Eikhorn 1 in. by 2 in., T.13). (*9, 10, 13, 14*). In Table No. 1 will be found the figures giving the percentages of the constituents by volume, the calorific value of the gas, and the yields per long ton.

Excessive Weight of Inert Nitrogen

In gas from the continuous vertical retort there is 10 times more nitrogen than in electric gas and it amounts to nearly three times the nitrogen originally in the coal. (*14*). This extra nitrogen comes, of course, from flues surrounding the retorts. It enters the retorts through leaks in the walls. (*15, 16, 17*). This excessive weight of inert nitrogen in the gas adds to its cost of distribution, because under any conditions the amount of gas distributed varies inversely as the square root of the weight of the gas. Examining the figures we see that in the same pipes and with the same expenditure of energy 10 per cent. more therms of electric gas can be distributed than of the older type gas.

TABLE—No. 1.

	Carbon Dioxide CO_2	Illuminants Ill.	Oxygen O_2	Carbon Monoxide CO	Hydrogen H_2	Methane CH_4	Ethane C_2H_6	Nitrogen N_2	B.Th.U.'s per Cu. Ft. S.T.P.	Yields per long ton Cu. Ft.	Yields per long ton Gas Therms
Continuous Vertical Retort	0.8	2.2	0.6	7.4	52.0	29.05	—	7.95	544	13,100	71.2
Electric Process	0.8	2.5	0.6	8.5	61.5	24.00	1.3	0.80	532	11,930	63.5

With the excessive amounts of nitrogen found in ordinary manufactured gas there is associated gum-forming constituents; these and the naphthalene present cause stoppages of lines and appliances, which difficulties further increase distribution costs. (*18, 19*). In electric gas there is neither naphthalene nor gum-forming constituents.

In electric gas the percentages of hydrogen and of illuminants are higher than in ordinary gas, giving electric gas a higher flame temperature and enabling the transfer of the heat from the flame to be made in the ideal way—by radiation. For these reasons electric gas is of greater value to both distributor and consumer. The ultimate gain to both more than off-sets the slightly greater quantity of gas yielded by other processes. This yield is due to the presence of oxygen, carbon dioxide and nitrogen which are not only valueless, but detrimental.

The third of the three bases of profitability of the electric carbonisation process is of the utmost importance in the present crisis for it opens the door wide to national self sufficiency of liquid fuels. Figures for the tar, taken from the same tests as the gas figures (*9, 10, 13, 14*) show that per long ton of coal carbonised the yields are:—

From the continuous vertical retort, 9.3 gallons of dry tar per ton.

From the electric process, 27.0 gallons of dry tar per ton.

Upon distillation these tars yielded the following amounts of oil, the pitch being left as a solid residue:—

From the continuous vertical retort, 3 gallons of oil per ton.

From the electric process, 18 gallons of oil per ton.

Six times as much oil was obtained from the electric process. Think what this can mean to Britain in the production of motor fuel. This is not merely the result of a laboratory experiment. The high yield of electric oil obtained was from the largest stationary mass of ordinary bituminous coal ever carbonised in a single retort at one operation.

The reasons for the vast difference in the amounts of oil from both processes are fundamental. Some of these reasons are: In the electric process coal is carbonised in a gas tight retort. The heat is generated from within. Consequently in the electric process the oily vapours leave the retort over the cold coal in it. None is lost. In high temperature processes coal is carbonised in retorts that leak at every pore and joint. Heat is generated outside the retort passing through brickwork into the coal. Consequently in the high temperature processes the oily vapours leave the retort over hot coke and are thereby degraded. They are further degraded or ultimately lost by either coming in contact with the highly heated brickwork, or else leaking through cracks and joints in it. Expressed in monetary terms the difference in the yields of tar per ton of coal carbonised is in favour of the electric process to the amount of 4s. 0.9d.

All told, then, the gains in favour of the electric process per ton of coal carbonised can be conservatively estimated at 12s. 11d. This figure is obtained by adding the extra values of the products to the lessened overhead burdens. These figures show that any fears about the economic feasibility of the electric process in Britain are unfounded.

Some technicians may fear that the electric process may give electricity undertakings an advantage over gas undertakings. (*2, 3*). Far from giving one industry an advantage over the other it co-ordinates the two. By co-ordination the wasteful competition now existing will be ended. Especially in Britain is this the case. Here many of these undertakings are jointly owned by public authorities. The use of the electric process creates a technical balance between the electric and gas industries. As in the gas industry, so in the electric industry, there is physical waste of coal. This is because of the necessity for banking fires, for raising steam pressure, for warming up turbines, for operating boilers and turbines under variable load and auxiliary equipment under light load and so on.

Economic Waste of Idle Equipment

The generation of electricity in addition to the physical waste of coal entails another and greater waste. It is the intangible economic waste of idle equipment. The enormity of this economic waste becomes apparent when one realises the amount of capital invested in electric generating plants and the fact that these plants stand in disuse and are deteriorating two-thirds of every year. (*5*). The losses on such equipment when entirely idle are very much greater than when even a small load is carried. The waste of coal in both industries can be stopped and the stupendous economic waste in the electric industry can be overcome by harnessing the electric plants to the job of making coke, gas, and oil from that magnificent resource upon which the economic greatness of Britain has been built—coal.

So, in one technical process we have an answer to many economic problems. Economic utilisation of the idle time and equipment of the electric generating plants. Cheaper production of a ton of coke and better coke, cheaper production of a therm of gas, and better gas. Six times as much oil.

By means of the electric carbonising process Britain can become self sufficient in the production of liquid fuel.

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PROHIBITION OF EXPORTS

Chemicals and Metals Affected

IN exercise of the powers conferred upon them by Section 1 of the Import, Export and Customs Powers (Defence) Act, 1939, etc., the Board of Trade has issued the Export of Goods (Prohibition) (No. 2) Order, 1939, dated September 1.

The Schedule to the Order includes a wide range of chemicals and allied products which are prohibited to be exported save under the authority of a licence granted by the Board of Trade. They include the following :—

- Acetone, acetone oil and methyl acetone.
- Acids—
  - Boric, Chloracetic, Nitric, Sulphuric, including Oleum.
- Alcohol—
  - Methyl alcohol.
  - Ethyl alcohol.
  - Butyl alcohol.
- Ammonia.
- Ammonium compounds.
- Aniline and aniline compounds—
  - Aniline
  - Alkylated anilines.
- Arsenic compounds—
  - Arsenious oxide.
  - Arsenious chloride.
  - Sodium arsenite.
  - Organo-arsenic compounds.
- Barium nitrate.
- Benzyl chloride.
- Bismuth compounds.
- Bleaching powder (chloride of lime).
- Borax.
- Bromides.
- Bromine.
- Calcium carbide.
- Calcium silicide.
- Carbons, decolourising and activated.
- Carbon tetrachloride.
- Cellulose esters.
- Cellulose ethers.
- Cerium compounds.
- Chloramine T (sodium p. toluene sulpho-chloramide).
- Chlorinated naphthalenes.
- Chlorine, compressed or liquefied.
- Coal and coal tar products—
  - Benzol and benzene.
  - Toluol and toluene.
  - Anthracene.
  - Carbolic acid.
  - Cresylic acid and cresols.
  - Naphthalene (excluding naphthalene oil).
  - Tar oil, creosote oil, anthracene oil and other heavy coal tar oils.
  - Solvent naphtha.
  - Other coal tar products.
- Cobalt compounds.
- Copper, sulphate of.
- Disinfectants, insecticides, weed killers, fungicides and sheep and cattle dressings.
- Disinfectants, and antiseptics for the treatment of wounds.
- Fertilisers manufactured—
  - Basic slag.
  - Superphosphate of lime.
  - Compound fertilisers, mixed fertilisers and compound manures, including fertilisers consisting of ammonium nitrate mixed with other materials not elsewhere specified.
- Bonemeal.
  - Other descriptions, including guano.
- Formaldehyde.
- Glycerine.
- Glycol ethers, glycols and ether esters of glycols.
- Iodides.
- Iodine.
- Magnesium carbonate.
- Magnesium oxide.
- Nitrates not elsewhere specified.
- Phosphorus and phosphorus compounds.
- Potassium compounds.
- Radium compounds.
- Sodium compounds—
  - Bichromate.
  - Caustic.
  - Nitrate.
- Strontium nitrate.
- Strontium oxalate.
- Thorium compounds.
- Tungsten carbide.
- Rubber accelerators, anti-oxidants and vulcanisers.
- Intermediate coal tar products—Indigo.
- Painters' and printers' colours and materials not elsewhere specified—
  - Carbon blacks.
  - Lithopone.
  - Zinc oxide.
  - Zinc sulphide (luminous).
  - Paints and painters' enamels prepared or ready mixed.
  - Distempers.
  - Varnish and lacquer.
  - Printer's ink.
- Oils, fats and resins manufactured
- Lubricating compounds.
- Mineral jelly.
- Petroleum (including shale oil) refined—Kerosene, Motor spirit, Spirit other than motor spirit, Lubricating oil, Gas oil, Fuel oil, Other sorts.
- Turpentine and Paraffin wax.
- Abrasives, crude or partly manufactured—
  - Natural, including natural corundum, emery and garnet.
  - Artificial—
    - Silicon carbide, including carborundum.
    - Aluminium oxide, including alundum and aloxite.

(*Continued overleaf*)

(*Continued from previous page*)

Boron minerals, crude, and concentrates of boracite and rasorite.
Diatomaceous earth.
Graphite.
Lava and pumice in lump or powder.
Mica.
Phosphate rock.
Quartzite.
Sand—
  Monazite sand.
  Silica sand, including quartz sand.
Sulphur.
Non-ferrous metalliferous ores and scrap—
  Ores and concentrates—
    Antimony (including liquated sulphide).
    Bauxite.
    Chromium.
    Copper (including regulus and matte).
    Cryolite.
    Iridium.
    Iron pyrites (including cupreous pyrites).
    Lead (including matte).
    Magnesium.
    Manganese.
    Molybdenum.
    Nickel (including matte).
    Radium.
    Tin (including matte).
    Titanium.
    Tungsten.
    Vanadium.
    Zinc.
Seeds and nuts for oil, oils, fats, resins and gums—
  Seeds for expressing oil therefrom.
  Nuts and kernels for expressing oil therefrom.
  Gums and resins—
    Copal.
    Shellac, seedlac and sticklac.
    Rosin (colophony).
  Waxes—
    Beeswax.
    Candelilla.
  Oils, fats and greases—
    Animal.
    Fish and marine animal.
    Vegetable, other than essential.
    Mixtures of oils, fats and greases other than essential.
    Mineral—
      Crude petroleum.
      Crude shale oil.
    Oleine (oleic acid).
    Soap stock.
    Stearine (stearic acid).
Charcoal.
Fertilisers, raw or simply prepared.
Tar and pitch (excluding natural asphalt and bitumen).
Coke and manufactured fuel—
  Coke, including petroleum coke.
  Manufactured fuel of which coal or coke is the chief constituent.
Scientific glassware—
  Resistance glass and silica ware.
  Graduated glassware.
Laboratory porcelain as specified in the United Kingdom Customs and Excise tariff.
Optical glass and optical elements whether finished or not, as specified in the United Kingdom Customs and Excise Tariff.
Stoneware, acid proof and chemical, and acid resisting bricks.
Refractory bricks, blocks and tiles of magnesite and dolomite.
Abrasive wheels, cylinders, cups, cones, discs, rollers, blocks, bricks, stones or sticks, consisting of grains of natural or manufactured abrasive bonded together with other material.
Crucibles, plumbago.
Ferro-alloys, etc.—
  Ferro-chromium.
  Ferro-manganese and spiegeleisen.
  Silico-manganese.
  Ferro-silicon.
  Ferro-titanium.
  Ferro-tungsten.
  Ferro-uranium.
  Ferro-vanadium.
  Ferro-molybdenum.
  Silicon and alloys thereof.
  Silicon powder.
  Other descriptions.
Aluminium and alloys containing aluminium.
Antimony and alloys containing antimony.
Arsenic metal.
Bismuth metal.
Chromium metal and alloys containing chromium.
Cobalt.
Copper.
Lead.
Magnesium, metallic, and alloys containing magnesium.
Magnesium powder.
Mercury and mercury amalgams.
Molybdenum.
Nickel and alloys containing nickel (including Mu-metal).
Palladium, iridium, rhodium, osmium, ruthenium, osmiridium, beryllium and columbium, and alloys thereof.
Tantalum and tantalum wire.
Titanium.
Tungsten (and tungsten wire).
Vanadium.
Zinc or Spelter.
Gauges and measuring instruments of precision as specified in the United Kingdom Customs and Excise Tariff, except precision squares, scribing blocks of precision or surface gauges, and surface plates scraped.
Flow meters.
Thermopiles.
Pyrometers.
Clock, watch, chronometer and the like escapements.
Chemical plant.
Sugar making and refining machinery.
Drugs, medicines and medicinal preparations are also included.

Special Cements in the U.S.A.

Production Figures for 1938

ACCORDING to the U.S. Bureau of Mines, high-early-strength Portland cement produced in the United States in 1938, totalled 3,340,582 barrels, and shipments from the mills 3,385,523 barrels, valued at $6,247,699. These figures represent the output of 72 Portland cement plants. In 1937 the output of 64 plants in 23 States totalled 4,192,959 barrels.

Masonry cement of the Portland cement class produced in 1938 by five plants totalled 84,875 barrels, and shipments from the mills 88,905 barrels, valued at $124,239. Corresponding figures for 1937, representing the output of ten plants, are: production, 257,385 barrels, and shipments from the mills, 273,144 barrels, valued at $362,807. Masonry cement (Hydraulic but not Portland) for use in masonry mortars reported for 32 plants for 1938 totalled 1,246,263 barrels, and shipments from the mills 1,225,960 barrels, valued at $1,589,908.

Low and moderate heat cement including Tennessee Valley Authority Type B Portland cement, produced in 1938 totalled 4,132,237 barrels, and shipments from the mills 3,730,814 barrels, valued at $5,550,369. These figures represent the output of 40 plants. Corresponding details for 1937, which represent the output of 29 plants, are: Production 3,169,593 barrels; shipments from the mills, 3,511,674 barrels, valued at $5,008,217. Because of the enormous masses of concrete used in large dams like those in the Tennessee Valley and the Far West a demand has arisen for cements that develop little heat in the process of setting. They include Tennessee Valley Authority Type B and other cements that conform with Federal Specifications.

Portland-Puzzolan cement, including cement reported as "high-silica," produced in 1938 totalled 159,745 barrels, and shipments from the mills 149,142 barrels, valued at $229,441. During 1937 production totalled 260,194 barrels and shipments from the mills, 294,384 barrels, valued at $417,130.

Seven plants located in the oil-bearing States of California, Colorado, Texas and Wyoming reported production of 226,769 barrels of Portland cement adapted for use in grouting oil wells. Shipments of this variety in 1938 amounted to 220,122 barrels, valued at $457,665. These plants in 1937 reported a production of 342,316 barrels and shipments of 313,064 barrels, valued at $652,960.

Miscellaneous special Portland cements produced in 1938 totalled 608,777 barrels; shipments, 589,663 barrels, valued at $965,970. These totals include certain plastic, temperature-resisting cements, etc.

THE AMERICAN CHEMICAL SOCIETY

Papers Read at Ninety-Eighth National Meeting

THE ninety-eighth national meeting of the American Chemical Society in which 5,000 chemists and industrialists participated, was held at Boston, Mass., last week.

Dr. James Bryant Conant, president of Harvard University and holder of the William H. Nichols Medal of the New York section of the Society for outstanding achievements in chemistry, was honorary chairman of the meeting which was one of the largest in the history of the Society. Papers relating to nutrition, vitamins, synthetics, public health, water pollution and conservation of natural resources were presented at sessions and symposia sponsored by the Biological, Medicinal, Organic, Agricultural and Food, Cellulose, Michrochemical, Petroleum, Celloid, and Water, Sewage and Sanitation Divisions. One of the principal features of the meeting was the celebration of the centenary of the discovery of the vulcanisation of rubber by Charles Goodyear; numerous papers describing the progress of rubber research and manufacture in the United States were read.

Several interesting papers were presented to the Division of Industrial and Engineering Chemistry. Abstracts of some of these are given below:—

Identification of Wax Mixtures

A procedure for the identification of commonly used waxes in admixture. By Samuel Zweig and Abraham Taub, Columbia University, New York, N.Y.

The increasing world consumption of waxes and their extensive utilisation in commercial polishes and other wax-containing products has brought to the fore the need for a definite procedure of analysis of waxes in admixture, a problem which hitherto has proved decidedly complex because of the qualitative similarity and natural variations of these substances. The proposed method utilises a correlation of pertinent physical and chemical constants with a quantitative separation of the waxes into groups of homologous compounds and a study of their properties.

The study is limited to the common waxes: spermaceti, carnauba, candelilla, beeswax, montan, and ozokerite. Certain allied substances such as cetyl alcohol, stearic acid, and rosin are included to indicate where they might interfere in the analysis.

The precipitation temperature of the waxes in *n*-butyl alcohol and *n*-heptane are proposed as criteria for the detection of carnauba and ozokerite in a mixture of waxes.

The quantitative separation involves the isolation of an ethanol-soluble fraction, high and low molecular weight fatty acids, hydrocarbons, and high and low molecular weight fatty alcohols.

A schematic outline for the identification of waxes in admixture has been developed on a semiquantitative basis.

Studies of the effects of sulphur dioxide on plants and animals. By Carl Setterstrom, Boyce Thompson Institute for Plant Research, Inc., Yonkers, N.Y.

Apparatus for studying the effects on plants and animals of prolonged exposure to various gases is described, results of continuous determinations of the sulphur dioxide content of the atmosphere at Boyce Thompson Institute are noted, design of the experiments and statistical treatment of the data are emphasised, and studies of the effects of sulphur dioxide on plants and animals are briefly summarised.

Over a two-year period, sulphur dioxide was found to be present in the atmosphere, in concentrations of 0.01 p.p.m. and above, 62 per cent. of the time. Maximum concentration recorded was 0.75 p.p.m. The average concentration including zero readings was 0.034 p.p.m.

Low non-marking concentrations of sulphur dioxide had no adverse effects on yield of alfalfa. Environmental and physiological factors were found to have a pronounced effect on susceptibility of plants to injury.

Sulphur dioxide was found to be less toxic to animals, at low concentrations, than is stated in the literature. No significant mortality or signs of distress occurred among healthy animals during a six-week exposure to a concentration of 33 p.p.m., or at lower concentrations. Fifty per cent. mortality among exercised guinea pigs occurred in 15 days at 64 p.p.m., in 12 hours at 1,040 p.p.m. Interesting pathological symptoms which developed at the higher concentrations are briefly summarised.

Detergents from Kerosene

Detergents from kerosene: II. The Alkyl Amine Hydrochlorides. By A. R. Padgett with Ed. F. Degering, Purdue University, Lafayette, Ind.

Alkyl amines and their corresponding hydrochlorides have been prepared from kerosene, and the latter have been compared with similar commercial compounds of known structure by means of a foam test and an interfacial tension test. The primary amine hydrochlorides appear to have more effect on the interfacial tension values and have higher foam values than do the secondary amines. With respect to both of these tests, the amine hydrochlorides prepared from kerosene gave less satisfactory results than did those prepared from lauryl bromide.

Factors affecting the production of Barium Chloride from Barite and Calcium Chloride. By R. Norris Shreve and R. K. Toner, Purdue University, Lafayette, Ind.

The reaction $BaSO_4 + CaCl_2 \rightleftharpoons BaCl_2 + CaSO_4$ was studied in concentrated aqueous solution at 175° C. and under conditions of fusion. The reaction was shown to have a true equilibrium state in each instance by studying it also as a reversion, i.e., from right to left as written. Under the former conditions a reaction time of 6 to 12 hours in the presence of sufficient $CaCl_2$ to give a saturated solution was found to give large, practical conversions to barium chloride. Time and temperature were shown to have no appreciable effect on conversion in the fused state. Aqueous methanol was shown to be a satisfactory extraction solvent if the insoluble type of anhydrite was formed in the reaction. Otherwise anhydrous organic solvents must be used to extract the $BaCl_2$ from the reaction mass.

Vapour Catalytic Oxidation of Toluene

The catalytic vapour phase oxidation of Toluene at atmospheric pressure. By W. George Parks and Ralph W. Yula, Rhode Island State College, Kingston, R.I.

The direct vapour catalytic oxidation of toluene in the presence of solid catalysts to produce benzaldehyde and benzoic acid has been investigated. Air was used as the source of oxygen and vanadium pentoxide on various supports was used as the catalyst.

Different forms of vanadium pentoxide were investigated to determine which had the greatest activity for the reaction. Vanadium pentoxide resulting from the decomposition of ammonium metavanadate proved to be the most satisfactory and the effect produced by suspending this material on alfrax, granular aluminum, and silica gel was investigated. The effect of temperature, time of contact, air/toluene ratio, and concentration of the vanadium pentoxide on the support was studied. The change in catalyst activity with use over a considerable period of time was measured.

The best yields were obtained with vanadium pentoxide (produced by decomposing ammonium metavanadate below 300° C.) supported on alfrax at temperatures between 380° and 460° C., time of contact 0.5 second, and an air/toluene ratio above 25.0. Under these conditions, if the total acidity of the drip is calculated as benzoic acid, yields between 35 and 55 per cent. per pass were obtained. Some maleic acid

was found to be present, although the mechanism for its formation is more complex.

The results of this investigation indicate that the most important variables controlling this reaction are temperature and method of catalyst preparation. Since the various forms of vanadium pentoxide do not exhibit the same activity, the crystal structure of the catalyst is important and should be investigated further.

Zein—A New Industrial Protein. By L. C. Swallen, Corn Products Refining Co., Argo, Ill.

The early history of zein is discussed. Zein is available only as a by-product of corn processing. Potential yield is 1 lb. per bushel of corn. Curves are given relating yield to extraction conditions. Extraction from gluten meal with 85 per cent. isopropyl alcohol is preferred. The commercial process consists of extraction, clarification, oil extraction with hexane, precipitation by water, and spray drying.

Zein Solvents

Physical properties of zein are discussed. Zein solvents have free hydroxyl, carboxyl, ketone, or amino groups. Usually, but not always, addition of water or secondary solvent is required. Secondary solvents usable with anhydrous alcohol include chlorinated hydrocarbons, hydroxy esters, glycol derivatives, and furfural derivatives. Zein is dispersed in aqueous solutions of sulphonated oils or ammonium or amine soaps.

Zein is cured by formaldehyde, the reactions being catalysed by acids and promoted by ammonia or primary amines. Formamide cures zein. Zein is compatible with some alcohol-soluble resins. Hydroxy esters, glycol derivatives, and substituted sulphonamides are used as plasticisers. The denaturation of zein is autocatalytic, the rate depending on the composition of the solution and conditions of storage.

The Potential Use of Hydrogen Fluoride in Organic Chemical Processes. By J. H. Simons, Pennsylvania State College, State College, Pa.

Anhydrous hydrogen fluoride, which is now available commercially, has been found useful in many organic chemical processes. It has been shown to act as a polymerising agent, an alkylating agent, an acylating agent, as a reagent for special reactions, and as a fluorinating agent. For many of these purposes it possesses advantages over other agents now used for the same purposes. High yields and freedom from obnoxious by-products as well as a wide choice of the compounds that may be used to make a desired product seem to be characteristic of hyrogen fluoride catalysed reactions. The physical properties of hydrogen fluoride alone should make it a preferred industrial reagent. These should result in considerable economies in practice not only in the design and operation of equipment, but also in the fact that in addition to high yields of products, both the hydrogen fluoride and the starting materials in many cases should be readily recovered and the separation of products from the reaction mixture made relatively easy.

Chemistry of Hydrogen Fluoride

In the paper the chemistry of hydrogen fluoride and its reactions is discussed and a summary and bibliography of recent work relating to organic chemical reactions are given. Reactions in which it acts as a catalyst are illustrated. Its physical properties are described and the materials of construction of equipment and the technique of use are discussed. Its possible technical and economical advantages over other reagents are pointed out.

Progress in petroleum research covering lubricants, fuels, by-products from petroleum and the physical properties of petroleum fractions and pure hydrocarbons was reported in papers presented to the Division of Petroleum Chemistry. The following are some abstracts:—

Propane Precipitation of Petroleum Resins. By P. T. Graff and H. O. Forrest, M. W. Kellogg Co.

Petroleum resins may be precipitated out of solutions of liquid propane and viscous fractions of crude petroleum at temperatures of 125° to 180° F. The resins so produced may be narrow fractions containing colour and carbon-forming material or wider fractions containing also very high viscosity oil of a naphthenic or paraffinic type. Operations are shown of propane precipitation of resins from several crude petroleum residua; some physical characteristics of these resins are given. The resins may be treated with selective solvents or further settled in propane solutions to obtain products not usually realised from petroleum.

The Properties of the Polybutenes and their Uses in Petroleum Products. By R. M. Thomas, J. C. Zimmer, L. B. Turner, R. Rosen, and Per K. Frolich, Standard Oil Development Company.

Hydrocarbon polymers of high molecular weight and varying in appearance from viscous liquids to tough elastic solids are obtained by the polymerisation of butenes at low temperatures. The general properties of these substances, and their use in various petroleum products are described. At ordinary temperatures the polymers are chemically inert and of stable character. In general, they are most readily dissolved in liquid aliphatic hydrocarbons and certain chlorinated hydrocarbons. Dilute solutions of the polymers are employed for the estimation of the average chain length of the molecules by the viscosity method. As addition agents in the production of various petroleum products such as motor oils of high viscosity index, nonleading textile lubricants or adhesive grease compositions, concentrated solutions of the polybutenes in mineral oils are employed. In other instances, the general properties of products such as asphalt or paraffin wax are modified by the incorporation of the polybutenes directly.

New Hydrocarbon Polymers

Dihydronaphthalene Polymers. By N. D. Scott and J. F. Walker, The R. and H. Chemicals Dept., E. I. du Pont de Nemours and Co., Inc.

A series of new hydrocarbon polymers has been produced by polymerisation of the isomeric dihydronaphthalenes with sodium naphthalene. From 1,4-dihydronaphthalene, light-coloured thermoplastic resins are obtained. From 1,2-dihydronaphthalene are produced infusible polymers which, although completely insoluble in most solvents, form colloidal solutions in some halogenated aromatics. By the action of 80 per cent. sulphuric acid on 1,2-dihydronaphthalene, it is converted to a mixture of dihydronaphthalene dimers.

1,4-dihydronaphthalene is conveniently prepared as previously reported by the reduction of naphthalene with sodium and alcohol. It may also be produced by the hydrolysis of sodium naphthalene. This isomer is rearranged to 1,2-dihydronaphthalene by action of sodium ethylate.

The Densities, Surface Tensions, and Viscosities of Cis and Trans Decahydronaphthalene. By W. F. Seyer and Charles H. Davenport, University of British Columbia.

The densities, surface tensions, and specific viscosities of cis and trans decahydronaphthalene have been measured from −40° to 180° C. When these quantities are plotted against temperature abnormal curves are obtained which are built up of straight-line segments. In the case of the cis compound the surface tension-temperature curve shows a marked break in the curve at 50° C. From the data obtained various quantities such as the critical temperatures, latents of evaporation and fusion, the parachor, and total surface energies have been calculated. The explanation suggested for the abnormal behaviour is that several isomers of both the cis and trans forms exist and that at certain temperatures molecular collisions become so violent as to change one unstable isomer into another.

The following are abstracts of two papers read before the Division of Gas and Fuel Chemistry:—

Atmospheric Oxidation of Coal at Moderate Temperatures. II. Effect of Oxidation on the Carbonising Properties of Representative Coking Coals. By L. D. Schmidt, J. L. Elder, and J. D. Davis, U.S. Bureau of Mines.

Preoxidised samples representative of eight different coal

beds were carbonised to measure the effect of oxidation on yields and properties of carbonisation products. In general, progressive oxidation results in decreased pore size of coke followed by poor fusion and finally by complete loss of coking power. The apparent specific gravity of coke increases with oxidation of the coal, but, in general, this change is accompanied by decreases both in strength of coke and in yield of by-products (except ammonia). The following proved to be sensitive measures of the extent of oxidation: (1) yield of tar; (2) physical properties of coke, especially when made in large retorts (80 kg. of coal); (3) agglutinating value. The majority of the coals tested show serious impairment of coking power before they are oxidised enough to decrease the heating value by one per cent. and before their ultimate and proximate analyses show changes definitely greater than the experimental error of analysis. The amount of oxygen required to cause a decrease of 20 per cent. in hardness of coke shows a threefold range between the most sensitive and the least sensitive coal tested. This oxygen requirement increases with the volatile matter and decreases with the oxygen content of fresh coals in a manner described by a quantitative relationship.

Hydrogenation of Peet Char

Hydrogenation of Peat Char. T. E. Warren, K. W. Bowles, and R. E. Gilmore, Canadian Bureau of Mines.

An experimental study was made of the effect of heating peat at a series of temperatures between 250° and 600° C. It was found that a large proportion of the oxygen in the peat could be eliminated as carbon dioxide. The char produced by heating at 300° C. had a higher ratio of net hydrogen to carbon than the original peat or the chars produced at the higher temperatures.

Comparative hydrogenation tests on peat and on a char produced at about 300° C. were made in the continuously operating plant at the Fuel Research Laboratories. The yields from the char were considerably better than those from the original peat. Combined preheating and hydrogenation yielded eight per cent. more oil, based on the original peat, than hydrogenation alone. About one-third less material had to be passed through the hydrogenation step of the process. There was also a substantial decrease in hydrogen consumption.

In the present tests, peat was selected because it stands at the extreme of low-rank, where the effects of heating are of greatest magnitude. It is probable, however, that other low-rank fuels can be similarly benefited to a lesser degree.

Oil and Fats

Provisional Control Orders Amended

THE Oil Seeds, Vegetable Oils, and Fats (Provisional Control) Amendment Order, 1939, the Marine Oils (Provisional Control) Amendment Order, 1939, and the Animal Oils and Fats (Provisional Control) Amendment Order, 1939, were made last week under the Defence Regulations, amending the provisional control orders which came into force on September 4 affecting oil seeds, vegetable oils and fats, marine oils, and animal oils and fats.

Persons holding stocks of more than 50 tons of the oil seeds, vegetable oils and fats, marine oils, and animal oils and fats specified in the original orders which are situated abroad must comply, as from Tuesday, with the directions of the Ministry of Food for securing that the ownership of these stocks is transferred to the Government.

A licence is necessary as from Tuesday for any dealings in these oil seeds, oils, and fats which are not already in the United Kingdom. All persons holding stocks of more than 50 tons of any of these oil seeds, oils, and fats, whether situated within or outside the United Kingdom must make a return on their holdings forthwith to the Ministry of Food. Sellers are reminded that the price at which sales are made must not exceed the average price current during the seven days preceding September 4.

Export Restrictions Abroad

Regulations by Foreign Governments

REGULATIONS controlling the export of certain goods including products of interest to the chemical and allied industries have been made by a number of Governments abroad. The following are details:—

Denmark

The following are among the items added to the list of goods the export of which from Denmark is prohibited:—All chemicals including manganese and magnesite and bleaching earth, all fertilisers, raw or pulverised mica, bauxite, raw phosphates, cement.

The Netherlands

The Board of Trade Journal states that the export of several products from the Netherlands has been prohibited except under licence. These include:—Benzole, together with other benzole carbon-hydrates, and all fluids chiefly consisting of benzole carbon-hydrates, phenol or carbolic acid and naphthaline; coal tar, coal tar asphalt, natural asphalt and asphalt bitumen, whether or not in diluted or emulsified form; ether-sulphureous, aceton, chloride of lime, calcium carbide, Chilean nitrates, natron nitrates and sulphur, nitric and sulphuric acids, glycerine, ethyl-alcohol, whether or not converted to other beverages than beer or wine; calcium nitrate; ammonium nitrate, potassium chloride; artificial fertilisers in any form; and coal tar, pitch and dyestuffs suitable for dyeing textiles.

Sweden

The export from Sweden of the following goods has been prohibited except under licence:—Manganese; magnesite, even calcined; crude phosphate; emery, not manufactured; chromium; tungsten, molybdenum and vanadium; graphite; benzol oils; carbolic acid, cresol and creosote oil; phenate of lime (*karbolkalk*), petrol, other kinds of mineral oils; compressed gases; hydrochloric acid; sulphuric acid and sulphurous anhydride; nitric acid; boric acid; benzoic acid and salicylic acid; phosphoric acid; also potassium, sodium and ammonium phosphates; cresolphosphoric acid (cresylphosphoric acid), also flotation products for the enrichment of ores, containing cresolphosphoric acid; glycerine; ethylen glycol; chrome alum; ammonium nitrate; nitrate of silver; potassium cyanide, sodium cyanide, carborundum and carbides of metals, not specially mentioned; common salt; potassium chloride; calcium chloride; sodium sulphate (Glauber salt); potassium nitrate; sodium carbonate and bicarbonate of soda; chloride of lime; peroxide of hydrogen and other peroxides, not classed under any other heading; saccharine and other artificial sweetening substances, wood spirit (methanol); acetone and acetone oil; also methylethylketone; formalin; ethylic ether, even mixed with spirit; collodium; casein; aniline dyes and other artificial organic dyestuffs, not classed under any other heading; fertilisers.

Switzerland

According to a decree issued by the Swiss Federal Council a permit is required for the exportation (direct or in transit) from Switzerland of the following goods:—Petroleum residues, petrol and benzol, vegetable and animal oils and greases for industrial use, petroleum, petroleum substitutes, mineral oils and tar oils, mineral oils and greases of tar and resinous oils.

Luxemburg

A decree of the Grand Duchy of Luxemburg requires a permit for the export of the following goods:—Arms, ammunition, war material and parts thereof; explosives and detonators of all kinds, and all materials used in the manufacture thereof (sulphuric acid, nitric acid, toluol, etc.); all kinds of oils for use as fuel or lubrication; crude petroleum, products from the distillation of crude petroleum and tar oils.

The British Chemical Industry

"Unprecedented Strength and Skill"—Mr. J. Davidson Pratt

MR. J. DAVIDSON PRATT, general manager of the Association of British Chemical Manufacturers, declared in an article in *The Daily Telegraph* on Wednesday that he could quite definitely state that the British chemical industry had, for years rather than months, been preparing for all emergencies.

The lesson of 1914 had, he said, imprinted itself too deeply to permit a second lapse. With farseeing assistance from the Government and courageous enterprise on behalf of the trade itself, Great Britain had been given a chemical industry capable of shouldering every need of peace or war. What that meant might not be obvious until it was realised that the chemist was ultimately responsible not only for bullets and explosives but also for the food we eat, the clothes we wear, the houses we live in, the books we read, and the vehicles we travel in.

It was an exhaustive list, and it naturally demanded a chemical industry wide and varied, so much so that to the layman there often seemed to be no connection between the various branches at all. But the connections were there for all that, and the list of processes in which some of the heavy chemicals, such as sulphuric acid, for example, played an essential part was amazingly long and diverse.

Referring to the production of nitrogen, Mr. Davidson Pratt stated that by a remarkably clever development of applied chemistry and physics we were now able to produce in our own country from things of which we have an inexhaustible stock—coal and air—an essential substance which until 1922 had to be imported from a foreign country 9,000 miles away. The development and construction of the plant itself cost a tremendous sum, but its principal product, ammonia, sold on the open market at a few pence per pound.

Mr. Davidson Pratt continued: "This very great discrepancy between the capital cost of providing production facilities, and the low unit value of the goods produced is a fundamental characteristic of many sections of the chemical industry. It is a factor which obviously makes reasonably settled conditions necessary if enterprise is to be encouraged and progress is to continue. Of all things, a home market reasonably protected from sporadic and uneconomic foreign competition is probably the chief essential. It was under precisely such conditions that the German chemical industry rose to the zenith of its power in the immediate pre-war years.

"The British chemical industry has enjoyed similar benefits for only a comparatively brief time. The country reaped the reward a month or two ago, at the conclusion of a special survey made jointly by the trade associations and the Government, directed to show how far we could be independent of all imported chemical supplies in event of war. Reversing the situation in 1914, the answer is now favourable beyond our hopes.

"The output of the British dye industry is about eight times larger than it was in 1914, and is technically the equal of any in the world.

"On the fine chemical side, which includes many materials of great medicinal importance, our output is now over twice as great as it was in 1918. In 1914 it was virtually non-existent. The production of heavy chemicals, such as the common acids and alkalis, is not only far larger than it was in 1914, but most of the plants now operating are of recent construction or equipment, and are second to none in efficiency.

"The production and refining of some of the rarer but industrially valuable metals has always been a branch of industry in which we have excelled. Our pre-eminence here has been still more firmly established.

"In short, the British chemical industry—the great underlying source of all our needs in peace or war—has reached an unprecedented pitch of strength and skill. Whether the principal need of the future is for guns, or butter, or both, the nation need fear no stint."

Sodium Stannate

Stability and Solubility Investigated

THE stability and solubility of sodium stannate have been investigated by Reiff and Toussaint (*Zeit. Anorg. Allg. Chem.*, 1939, *241*, 372-380). The sodium stannate was prepared in a crystalline condition by the method of Zocher; a 25 per cent. solution of stannic chloride hydrate in dilute hydrochloric acid was neutralised to methyl orange with caustic soda. The precipitated hydrous oxide was filtered and washed free of chloridon, and dissolved in concentrated caustic soda at 100° C., after maintaining at which temperature for some time sodium stannate crystallised out and was filtered, washed first with dilute caustic soda and then with alcohol and ether. In spite of extensive washing it was found impossible to obtain a product not contaminated with NaOh, from which it is concluded that the product must be sensitive to atmospheric CO_2. Apart from this the product was perfectly stable.

The solubility in pure water decreased from the very high value of 520 grams per litre at 0° C. to 280 grams at 120° C.; the amount of free NaOH in the solution was very small below 60°, and only reached 10 grams/litre at 120°. When caustic soda is added to the water, the solubility of the stannate is much reduced, and instead of falling steadily from 0° to 120° C. it showed a very flat minimum at around 80°. The solubility can also be reduced by additions of other inorganic salts (*e.g.*, the sodium salts with the following anions:—acetate, fluoride, perchlorate, chloride, iodide, carbonate, tungstate, nitrate, chromate, sulphate), and from the order of the reduction by the various salts, it appears that the efficiency is proportional to the water attracting power of the anion.

Crystalline Structure of Cement

Swiss Investigations

INTERESTING investigations into cement which have been carried out by Brandenburger at the Swiss Federal Polytechnic School (E.T.H.) have permitted him to cast some light on to its chemical structure. He points out that the questions which have been answered by ordinary chemical methods are relatively few, as far as cement is concerned. The method he used was to study the intracrystalline structure of the cement by its pattern of interference to X-rays.

This method has permitted him to group the principal constituent of cement (Ca_3SiO_5) with the related calcium disilicate (Ca_2SiO_4) as follows:—

I	αCa_2SiO_4	In which the Ca is a co-ordinative.
	βCa_2SiO_4	In which the Ca is an active cation.
	Ca_3SiO_5	A radical combination of SiO_4 tetrahedrons and CaOn polyhedrons, with a diffraction over 1.7, and a molecular volume smaller than the sum of the molecular volumes of the constituent oxydes.
II	γCa_2SiO_4	In which the Ca is a secondary cation,
	$Ca_3SiO_2O_7$	the anion tie being with the radical.
	$CaSiO_3$	SiO_4 or being replaced by a radical tie with SiO_4 tetrahedrons. Diffraction under 1.7, and molecular volume greater than the sum of the molecular volumes of the constituent oxydes.

At normal temperatures the silicate in the tricalcium silicate is no longer bound in stable fashion to the calcium, so that the unstable crystalline structure is easily attacked by water. This means that at least one CaO group must be easily detachable from the structure, as if this is detached all the remaining oxygen is tied co-ordinatively to the silica, thus removing the main reason for the instability of the tricalcium silicate. The anion frame, disturbed by the water, seeks a new anion tie suitable to the new temperature conditions.

A THIRD titanium dioxide pigments unit will commence shortly at the National Lead Co.'s, Sayreville, N.J., U.S.A., plant. The output is expected to be three times more than in 1935, when the first unit was started up.

PERSONAL NOTES

THE directors of the British Oxygxen Co. announce that SIR CHARLES BARRIE has joined the board. Sir Charles is chairman of Metal Traders, and his many directorships include the L.N.E.R., Cable and Wireless (Holding) and associated companies.

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MR. WILLIAM J. HUNTER, who died suddenly last week at his residence, 21 North Park Avenue, Ayr, was for 42 years employed at Hawkhill Chemical Works, Ayr, being foreman there for 33 years. When he retired two years ago he was succeeded by his son, Robert.

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IN view of the present state of war and the vital necessity of maintaining the closest contact in technical and scientific matters between the gas industry and Government Departments, the Council of the Gas Research Board, with the approval of The Institution of Gas Engineers, has appointed DR. W. T. K. BRAUNHOLTZ as Acting Director of Research for the Gas Research Board. Dr. Braunholtz will continue, in addition, to be the secretary of The Institution of Gas Engineers.

OBITUARY

MR. C. R. SEDDON, managing director of the East Lancashire Paper Mill Company, Ltd., has died at the age of 80. President of the Paper Makers' Association during 1923-26, Mr. Seddon had been one of the most important figures in the paper industry.

* * * *

MR. EDWARD LODGE, of Scale Hill, Birkby, Huddersfield formerly head of the Dyeing Department at Huddersfield Technical College, died recently aged 75 Mr. Lodge was a nephew of Mr. Joe Frost, of Moldgreen, Huddersfield, one of the pioneers of the dyestuffs industry. He was elected to a Fellowship of the Institute of Chemistry in 1916, and in that year he joined the cloth department of the War Office staff as dyeing consultant in association with Sir Charles Sykes. Later he was associated, as consultant and district representative, with Messrs. J. B. Wilkinson, of Dudley Hill, Bradford, with whom he remained until two years ago, when he retired.

MR. WILLIAM BOYD ANDERSON, of Glasgow, paint manufacturer, has left personal estate valued at £24,260.

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MR. W. H. HIGGIN, The Plas, Hanstephen, Carmarthen, retired chemical manufacturer, has left estate valued at £33,498 (net personalty £24,777).

SOYA BEAN EXPERIMENTS

A series of experiments is being successfully carried out by the South African Department of Agriculture and Forestry in its endeavour to develop a variety of soya bean for cultivation in South Africa.

Soya beans were introduced into South Africa about 40 years ago, but for various reasons did not become established. One of the most important causes of unsuccessful cultivation was the fact that the plants scattered their seed before they attained full maturity or could be harvested. Some years ago about 500 varieties of bearing pods were imported from all over the world, mainly from the East, and in a certain Chinese variety a single plant was discovered that did not scatter its seed. The progeny of this plant showed the same characteristics, but, unfortunately, the yield was small and the seed had an undesirable colour. Consequently, it was necessary to resort to crossing with other varieties.

A score of crossings were carried out successfully and several thousands of selections were made in the course of recent years. More than a hundred of these selections are at present pure-breeding and are therefore available for large-scale production.

Recent Trade Literature

CHEMICOVENS, LTD., have issued a brochure recently completed by their principals, the Union Chemique Belge, which provides detailed information about the Belgian company. It is stated that among the products dealt with by the twelve factories of the organisation in Belgium are inorganic chemicals, organic chemicals, agricultural and horticultural products, pure chemical products for pharmaceutical purposes, pharmaceutical specialities and refractory products.

The Colour Information Department of S. HUBBARD, LTD., have decided to offer their colour information to all engaged in the wearing apparel industry and have recently issued a circular letter to this effect together with a copy of their Autumn and Winter 1939/40 card. The Department has been established for over 30 years and is the only organisation in the United Kingdom of its kind that is completely self-contained, having under its direct control a staff of colour experts, research chemists, dyehouse technicians, and a colour card printing and mounting section.

The Soap Makers' Directory for 1939 has recently been published, price 2s. 6d. net. Containing 81 pages, it is a sturdy little volume which includes a list of the manufacturers of soap in Great Britain, with some of those in Ireland. There is also appended a list of candle makers in Great Britain. Special sections are devoted to soap makers in London, in the country, in Scotland and in Ireland, and in the candle makers' directory a list of candles is classified, showing the principal makers of each kind. The publishers are Simpkin Marshall, Ltd., and this is the 42nd edition of the Directory.

The latest edition (Volume 1, No. 9) of *Bakelite Progress* has just been published by BAKELITE, LTD. It contains interesting details of applications of bakelite materials which have recently been developed. Among the new applications reviewed are industrial lighting reflectors, connector blocks, mains operated fans, etc. Details are also given of results of research in the development of new materials, and improvements to existing products. These include re-inforcing of wood with bakelite resins, and uses of synthetic resin primer bases for the production of rapid drying priming coats which are not seriously softened, blistered or lifted by the subsequent application of nitro-cellulose lacquers containing powerful solvents.

HEAD, WRIGHTSON AND CO., LTD., have recently issued a folder dealing with cast iron air-raid shelters manufactured by them. They claim that cast iron shelters are free from serious corrosion, and once erected are absolutely permanent, without maintenance costs. They also claim that they lend themselves more readily to attachment of internal fittings, and are therefore the most economical form of shelter for this purpose. They may be readily extended to increase accommodation if required. A number of illustrations are given of these shelters, which show that approximately 1,000 sandbags will afford sufficient protective covering. The folder also contains a scale plan of a shelter capable of accommodating fifty persons.

Dew-point control forms the subject of a pamphlet recently issued by the BRITISH THERMOSTAT CO., LTD. The leaflet states with reference to the control of relative humidity that dew-point control is achieved by governing the temperature of saturated air leaving the washer. Several methods are available, the choice depending upon the inside conditions required, and the outside conditions likely to obtain, and each of these methods is capable of being applied in a large number of ways. It is claimed that all can be satisfactorily controlled by one or more of the wide range of Teddington instruments, including room and duct thermostats, proportioning damper units, inching motorised valves for steam or water, mixing valves for hot and cold water flow, and automatic controls for refrigeration units for use where the washer spray water has to be cooled to maintain the required dew-point.

General News——From Week to Week

THE CHEMISTS' EXHIBITION which was to have been held at the Royal Albert Hall from September 18 to 22 was cancelled.

DUE TO THE national state of emergency, the sixth annual conference of the Institute of Vitreous Enamellers has been indefinitely postponed.

JAMES LIGHT AND SON, LTD., lubricating oil refiners, announce that their city office is now Mona Lodge, Woodcote Park, Epsom. Telephone, Epsom 9327. Telegrams, Light, Epsom.

PINCHIN JOHNSON AND CO., LTD., announce business as usual during the war from their temporary headquarters, Witley Court, Witley, Surrey. Telephones, Wormley 280, 281, 282, 283, and 284.

UNTIL FURTHER NOTICE the meetings of the Society of Public Analysts and other analytical chemists, normally held on the first Wednesday in October and subsequent months, will not be held.

A DECISION TO INCREASE PRICES for dyeing and finishing by 5 per cent. from next Monday was made at a meeting in Bradford recently of representatives of the West Riding piece-dyeing trade. Dyers are to send copies of a letter announcing their decision to their customers.

THE BRITISH ALUMINIUM CO., LTD., have removed their head office to the Raven Hotel, Castle Street, Shrewsbury, Salop. Telephone, Shrewsbury 4451. Telegrams, "Cryolite, Shrewsbury." All of the company's branch office addresses remain unchanged.

OWING TO THE emergency G. A. Harvey and Co. (London), Ltd., are closing their West End offices at 58, Victoria Street, S.W.1, and transferring the staff to their works at Woolwich Road, London, S.E.7, to which address in future all communications should be sent.

A VIOLENT EXPLOSION, followed by an outbreak of fire, which occurred in the oilcake and cattle food mill of Calthrops, Ltd., at the corner of Marybone and Naylor Street, Liverpool, injured thirty-seven workmen and shook neighbouring houses and offices so much that many of their occupants thought that the city was experiencing its first air raid.

ONE OF THE greatest war risks is that of fire, and a useful precaution is to use metal equipment wherever possible. Small lockable cupboards of steel, standing about 3 ft. high, are especially useful for the storage of papers, commodities and personal belongings, and in this connection the Valor Company, Ltd., of Bromford, Erdington, Birmingham, 24, announce that they have a range of equipment of this type.

NEGOTIATIONS between Buckle, Crossley and Co., Ltd., Victoria Dyeworks, Bradford, and the National Union of Dyers, Bleachers, and Textile Workers were resumed to-day in connection with the wages dispute at the firm. The dispute, which developed about a fortnight ago, resulted in a week's stoppage of work by the operatives concerned. During that week the matter was reported to the Industrial Relations Officers of the Ministry of Labour, who convened a meeting of representatives of the two sides. Work was resumed last Thursday morning and a further conference, at which the Officers presided, was held last week. Approximately 150 employees are involved in the matter.

IT IS FAIRLY well known that the Board of Trade have instituted an insurance scheme covering the stocks of commercial concerns against the hazards of war. The procedure is for firms to register with their fire insurance companies, for which they pay a nominal fee, and the amount of the premium will depend upon the value of their stocks, when ascertained, the rate of premium being fixed by the Government. The scheme, as already mentioned, covers stock (not factory plant) but there is some doubt as to whether customers' machinery, undergoing repair (which may be described as "goods in trust") can be included as "stock." Barimar, Ltd., 14-18 Lamb's Conduit Street, London, W.C.1, who specialise in the repair of all kinds of machinery, are taking up this matter with the Board of Trade, and they inform us that they hope to arrange for parts sent to them for welding repair to be included in this special insurance scheme, while on their premises undergoing repair.

THE ENGINEERING AND MARINE EXHIBITION due to be held at Olympia from September 14 to 30 has been postponed.

SHAWINIGAN, LTD., Marlow House, Lloyd's Avenue, London, E.C.3, have evacuated to 113 Foxley Lane, Purley, Surrey. Telephone No., Uplands 1791.

THE ASSOCIATION OF BRITISH CHEMICAL MANUFACTURERS announce that their annual dinner, which was to have been held on October 12, 1939, has been cancelled.

SEVERAL MEN were injured this week in an explosion at a chemical works in Wales. Four men were taken to hospital; others were treated at the works. The explosion was heard many miles away.

THE FERTILISER MANUFACTURERS' ASSOCIATION, LTD., announce that, until further notice, the address of the Association is 19 Berkeley Square, Bristol, 8. Tel. Nos. 21321, 21322, 21323, 20991. Tel. address: Effemay, Bristol.

THE NORTHERN ALUMINIUM COMPANY, LTD., has had its nominal capital increased by £400,000, in £1 ordinary shares, to £1,500,000. The company announced this week that the price of its aluminium paste pigment for the manufacture of aluminium paint has not been advanced. Every effort will be made to keep to the standardised charges.

LEEDS EDUCATION COMMITTEE announce that arrangements for the opening of the new sessions at the Leeds Colleges of Art, Commerce, and Technology, and evening institutes have been cancelled, and that intending students should await further instructions. This will affect the courses in Advanced Chemistry due to start on September 25 at the Leeds College of Technology.

SHAW SCOTT AND CO., LTD., announce that stocks of calcium cyanamide are now exhausted throughout the country, and it is difficult for them to foresee when it will be possible to obtain further supplies. In the circumstances, therefore, they are for the time being unable to accept any orders, but hope that in the near future they shall be able to replenish stocks. Their price list for the season 1939/40 is cancelled.

ABOUT 6,000 WORKERS in the Liverpool seed, oilcake and provender industries will receive increased wages as the result of the agreement reached last week between representatives of the employers and employees serving on the Joint Industrial Council for the industry. Altogether some scores of thousands of operatives throughout the country will benefit. Workers in the seed and oilcake section will receive an advance of 5s. per week and those in the provender section 3s. per week which will bring the lowest paid worker up to a uniform minimum of 60s. per week.

ALTHOUGH IT IS too early to foreshadow the future of the china clay industry, the shipments for August were over 9,000 tons above those recorded for the same month in the peak year of 1937. Last month Fowey alone shipped 51,074 tons compared with 38,741, the previous year, whilst Par shipped 15,491 tons against 9,308 tons in August, 1938. Charlestown also showed considerable activity last month by despatching 6,778 tons compared with 4,336 tons for August, 1938. A total of 79,506 tons compared with 58,642 tons in August, 1938, was shipped.

IT WILL BE REMEMBERED that in 1914 the existence of the manufacture of "Vitreosil," pure fused silica, in this country was of great service to the nation. The pioneer operators of the processes, the Thermal Syndicate, Ltd., Wallsend, Northumberland, were then able to give very quick deliveries of acid and heat resisting parts for chemical plant and this facility is even greater now. The processes of manufacture of "Vitreosil" can be carried out reasonably quickly and, most important, do not require long periods of time for drying, firing or annealing operations. This is due to the unique heat resisting properties of the finished product. Further, the manufacturers announce that they have greatly extended the range of shapes and sizes of pipes, bends, liquid traps, condensing coils and vessels (to mention only a few shapes) which can be produced. In addition they have recently completed a scheme of standardisation and correlation of sizes of chemical plant parts which will have obvious advantages to the user.

MESSRS. BOOTS, the chemists, announce that until compelled by rising costs, there will be no increase in the price of goods of their own manufacture sold at their 1,100 branches throughout the country.

THE CHEMICAL ENGINEERING AND WILTON'S PATENT FURNACE Co., Ltd., 76 Victoria Street, London, S.W.1, have moved to The Old House, London Road, Horsham, Sussex. Telephone: Horsham 769.

THE PRICE of quicksilver has now been fixed at 86 U.S. dollars (representing £1 at present exchange rates) per bottle ex-warehouse in United Kingdom, and $82 per bottle f.o.b. Spanish and Italian ports. The price up till the end of August was £16 10s. per bottle, quoted in sterling. It is understood that U.K. trade buyers, in the meantime, can obtain their supplies on sterling basis.

THE INSTITUTION OF CIVIL ENGINEERS announces that the Council of The Institution have decided to continue, as far as may be practicable, the work of the Institution from the headquarters building in Great George Street, Westminster, S.W.1. The meetings of the Institution in London will be suspended until further notice, and the Conference on Engineering Education and Training and the Road Engineering Exhibition are postponed indefinitely.

BORAX AND CHEMICALS, LTD., Kings Bourne House, High Holborn, London, W.C.1, announce that in order that they may be in a position to render satisfactory service under present difficult conditions, it has been arranged that while maintaining a skeleton staff for the present at the above address, their administrative and accounting staff shall occupy temporary offices at "Batchelors," North Waltham, near Winchester, Hants. Tel. No.: Dummer 39 (on London Toll exchange).

THE BRITISH CHEMICAL AND DYESTUFF TRADERS' ASSOCIATION, Ltd., announce that members should note that arrangements have been made with the Import and Export Licensing Departments for the Association to supply its members with the necessary application forms (including the form for statement of past trading). Licence application forms are now available and will be supplied by the Association on request. It is suggested, however, that for the present members should not apply for a greater number of forms than is necessary for immediate requirements. The Association has attended to a large number of inquiries from members dealing with the various defence measures now in operation. It is anticipated that from time to time merchants and distributors will be confronted with problems and the Association is keeping in close touch with the administrative departments in order that such matters can be settled without undue delay.

THE LATEST list of members of the Institution of Chemical Engineers was issued this week. Containing 92 pages it comprises details of past-presidents, officers and council for 1939, membership list and a geographical list of members.

DISTILLERIES on Speyside resumed work on Monday for the season. At the moment, distilleries are uncertain as to the duration of working season but unless national exigencies intervene, distilling will be pursued for a period extending to between 30 and 40 weeks. Meantime, stocks of coal, coke, and peats are being delivered at distilleries.

THE BRITISH CAST IRON RESEARCH ASSOCIATION announces that the following students are awarded the Diploma of the British Foundry School following the work and examinations for the session 1938-39:—J. Birchall (Horwich), J. V. Chatterton (Birmingham), L. Clarke (Willenhall), V. D. Griffiths (Birmingham), P. H. Lawrence, B.Sc. (Bristol), Derby, E. J. Ludlow (London), (Distinction in Foundry Technology and Foundry Casting Studies and Planning—Ferrous), W. L. Proctor, B.Sc. (Hons. Manchester), (Birmingham), (Distinction in Foundry Technology, Foundry Management, Metallurgy), V. S. Ganesh Rao (Jamshedpur, India), W. Roberts (Adlington, Lancs.), F. W. Rose (Leeds), F. W. Taylor (Walsall), B. H. Trenear-Thomas, B.Sc. (Eng. London), (Birmingham), C. H. Wilson (Nottingham). In view of the outbreak of war the Governing Body has decided to close the school until further notice.

Foreign News

ANTICREASING resins for textiles are prepared according to Italian Patent 355,152 by condensing a saccharide such as lactose with an aldehyde in presence of an acid catalyst.

CEMENT, CHLORIDE OF LIME, petrol and petroleum products and soap are among the goods whose export from Malta is prohibited unless a licence, issued by the Lieutenant-Governor, is obtained.

EXPORTS OF SULPHUR from Peru increased from 724 tons in 1936 and 1,596 in 1937 to 1,975 in 1938. All exports were made from the port of Tacna and accounted for most of the total domestic production.

IT IS ANNOUNCED by the Customs Division of the Department of National Revenue, Canada, that cream of tartar powdered, acid tartaric powdered, and dibutyl phthalate, are now included in the list of Canadian-made products.

IT IS REPORTED that the absorbent capacity of active carbons can be considerably increased by heating with superheated steam at 120° C. for a period varying with the size of grain from a few minutes to several hours (Italian Pat. 356,595).

Inventions in the Chemical Industry

The following information is prepared from the Official Patents Journal. Printed copies of Specifications accepted may be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 1s. each. The numbers given under "Applications for Patents" are for reference in all correspondence up to the acceptance of the Complete Specification.

Applications for Patents

PREPARATION OF TITANIUM DIOXIDE.—Pittsburgh Plate Glass Co. (United States, May 4.) 24804.

TREATMENT OF CHROMIUM ORES.—Pittsburgh Plate Glass Co. (United States, Dec. 20, '38.) 24805.

MANUFACTURE OF OXYGEN COMPOUNDS OF TERPENE HYDROCARBONS.—A. S. Ramage. 24850.

MANUFACTURE OF AZO-DYESTUFFS.—Soc. of Chemical Industry in Basle. (July 11, '38.) (Switzerland, June 20, '38.) 24506.

SOLUBILISING INSOLUBLE, ETC., COMPOUNDS.—Ward Blenkinsop and Co., Ltd., and E. Zerner. 24711.

WELDING.—E. G. Budd Manufacturing Co. (United States, Sept. 3, '38.) 24971.

SPECTRO-PHOTOMETERS.—Calco Chemical Co., Inc. (United States, Sept. 7, '38.) 25086.

PROCESS OF PURIFYING COMPOSITIONS containing insoluble earthy impurities.—T. P. Campbell and W. B. Jacobsen. 25014.

PREPARATION OF STEROL COMPOUNDS, ETC.—E. I. du Pont de Nemours and Co. (United States, Sept. 2, '38.) 24998, 24999.

MANUFACTURE OF ACYLATED AMMONIUM-DIARYLMETHANE COMPOUNDS.—J. R. Geigy A.-G. (Switzerland, Sept. 1, '38.) 24990.

GLASS FORMING-MACHINES.—G.M.S. Corporation. (United States, Sept. 3, '38.) 25150.

ANAESTHETISING-APPARATUS.—J. M. St. L. Howard. 24958.

PLASTIC INJECTION.—W. F. Grote. (United States, April 17.) 25043.

MANUFACTURE OF CELLULOSIC PLATES, ETC.—E. Kruger and W. F. Hobdell. 25135.

THERMOSTATICALLY CONTROLLED VAPORISERS.—T. C. McDowell. 25021.

VAPORISING UNIT FOR LIQUID FUEL LIGHTING BURNERS.—T. C. McDowell. 25022.

PROCESSES FOR VITREOUS ENAMELLING.—A. Matthes. (United States, Sept. 9, '38.) 25004.

FOAMING COMPOSITIONS.—J. L. Moilliet, S. H. Oakeshott, and Imperial Chemical Industries, Ltd. 24972.

PROCESS FOR THE RECOVERY OF FAT from watery emulsions.—A. C. E. Anderson-Orris. (Denmark, Feb. 7.) 25044.

BONDING COMPOSITION.—Standard Oil Development Co. (United States, Sept. 27, '38.) 24988.

TREATMENT OF BLAST FURNACE SLAG.—A. Taylor. 24956.

MANUFACTURE OF CEMENT.—A. Taylor. 24957.

STABLE COLLOIDAL GRAPHITE, ETC.—W. W. Triggs (Acheson Colloids Corporation). 24978.

PREPARING PLASTIC MATERIAL FOR EXTRUSION.—G. W. Wacker 25151.

MANUFACTURE OF AMINO CYCLIC SULPHONAMIDES and their derivatives.—Ward Blenkinsop and Co., Ltd., B. P. H. Wiesner and E. Katscher. 25149.

Weekly Prices of British Chemical Products

CONDITIONS in the general chemical market are at present in a state of adjustment and values in all departments must be regarded as on a nominal basis. In a few instances quotations have already been adjusted notably a rise of £2 per ton in the price of borax and £3 10s. per ton in the price of boric acid. Lead oxides and white lead have been increased by £3 per ton and control prices are now ruling for lithopone, zinc oxide, and zinc sulphide. There is an upward trend in the price of nearly all chemicals, but a complete adjustment of quotations will not be possible for some weeks. The market for coal tar products has not yet settled down to the new situation and prices are in the process of adjustment. A fair amount of business is being placed for those products which are readily obtainable and in such cases transactions have been completed at rates considerably higher than pre-war quotations.

MANCHESTER.—In many respects price conditions on the Manchester chemical market during the past week have remained largely nominal. Factors arising from such emergency conditions as the insurance of stocks are creating much-discussed problems between buyers and sellers in relation to old contracts, but, generally speaking, these are being closely followed in the terms and the spirit. Until the price position is clearer than it is at present sellers are not anxious to operate and in a number of instances are doing so on a day-to-day basis. A steady movement of heavy products into consumption is reported. The light coal tar products remain very firm and a good demand is being experienced in most cases.

GLASGOW.—The Scottish heavy chemical market continues to experience a period of unparalleled activity, with prices remaining firm and rising as costs increase.

Price Changes

Rises: Borax Commercial, Boric Acid, Calcium Bisulphite, Chrometan, Chromic Acid, Chromic Oxide, Chromium Oxide (green), Iodine, Potassium Iodide, Red Lead, Sodium Chromate, Sodium Hyposulphite.

General Chemicals

ACETONE.—£39 to £43 per ton, according to quantity.

ACETIC ACID.—Tech., 80%, £30 5s. per ton; pure 80%, £32 5s.; tech., 40%, £15 12s. 6d. to £18 12s. 6d.; tech., 60%, £23 10s. to £25 10s. MANCHESTER: 80%, commercial, £30 5s.; tech., glacial, £42 to £46.

ALUM.—Loose lump, £8 7s. 6d. per ton d/d; GLASGOW: Ground, £10 7s. 6d. per ton; lump, £9 17s. 6d.

ALUMINIUM SULPHATE.—£7 5s. 0d. per ton d/d Lancs.

AMMONIA, ANHYDROUS.—Spot, 1s. to 1s. 1d. per lb. d/d in cylinders.

AMMONIUM CARBONATE.—£20 per ton d/d in 5 cwt. casks.

AMMONIUM CHLORIDE (see Salammoniac).—Firsts, lump, spot, £42 17s. 6d. per ton; d/d address in barrels. Dog-tooth crystals, £35 per ton; fine white crystals, £18 per ton, in casks, ex store. GLASGOW: Large crystals, in casks, £37 10s.

AMMONIUM DICHROMATE.—9¼d. per lb. d/d U.K.

ANTIMONY OXIDE.—£68 per ton.

ARSENIC.—Continental material £10 10s. per ton c.i.f., U.K. ports; Cornish White, £12 5s. to £12 10s. per ton f.o.r., mines, according to quantity. MANCHESTER: White powdered Cornish, £15 10s. per ton, ex store.

BARIUM CHLORIDE.—£11 10s. to £12 10s. per ton in casks ex store. GLASGOW: £12 per ton.

BLEACHING POWDER.—Spot, 35/37%, £9 5s. per ton in casks, special terms for contract. GLASGOW: £9 5s. per ton net ex store.

BORAX COMMERCIAL.—Granulated, £18 per ton; crystal, £19; powdered, £19 10s.; extra finely powdered, £20 10s., packed in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Granulated, £18 per ton in 1-cwt. bags, carriage paid.

BORIC ACID.—Commercial granulated, £32 per ton; crystal, £33; powdered, £34; extra finely powdered, £36, in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Crystals, £33; powdered, £34, 1-cwt. bags in 1-ton lots.

CALCIUM BISULPHITE.—£6 15s. per ton f.o.r. London.

CALCIUM CHLORIDE.—GLASGOW: 70/75% solid, £5 12s. 6d. per ton ex store.

CHARCOAL, LUMP.—£6 to £6 10s. per ton, ex wharf. Granulated, £7 to £9 per ton according to grade and locality.

CHLORINE, LIQUID.—£18 15s. per ton, seller's tank wagons, carriage paid to buyer's sidings; £19 5s. per ton, d/d in 16/17 cwt. drums (3-drum lots); £19 10s. per ton d/d in 10-cwt drums (4-drum lots); 4⅜d. per lb. d/d station in single 70-lb. cylinders.

CHROMETAN.—Crystals, 3d. per lb.; liquor, £13 per ton d/d station in drums.

CHROMIC ACID.—10d. per lb., less 2½%; d/d U.K.

CHROMIC OXIDE.—11¾d. per lb.; d/d U.K.

CITRIC ACID.—1s. 0¼d. per lb. MANCHESTER: 1s. 0¼d. GLASGOW: B.P. crystals, 1s. 0¼d. per lb; less 5%, ex store.

COPPER SULPHATE.—£18 5s. per ton, less 2% in bags. MANCHESTER: £19 per ton f.o.b. GLASGOW: £19 10s. per ton, less 5%, Liverpool in casks.

CREAM OF TARTAR.—100%, £4 12s. per cwt., less 2½%. GLASGOW: 99%, £4 12s. per cwt. in 5-cwt. casks.

FORMALDEHYDE.—£20-£22 per ton.

FORMIC ACID.—85%, in carboys, ton lots, £42 to £47 per ton.

GLYCERINE.—Chemically pure, double distilled, 1,260 s.g., in tins, £3 10s. to £4 10s. per cwt. according to quantity; in drums, £3 2s. 6d. to £3 16s. 0d. Refined pale straw industrial, 5s. per cwt. less than chemically pure.

HYDROCHLORIC ACID.—Spot, 5s. 6d. to 8s. carboy d/d according to purity, strength and locality.

IODINE.—Resublimed B.P., 7s. 9d. per lb. in 7 lb. lots.

LACTIC ACID.—(Not less than ton lots). Dark tech., 50% by vol., £24 10s. per ton; 50% by weight, £28 10s.; 80% by weight, £50; pale tech., 50% by vol., £28; 50% by weight, £33; 80% by weight, £55; edible, 50%, by vol., £41. One ton lots ex works, barrels free.

LEAD ACETATE.—LONDON: White, £31 10s. ton lots; brown, £35. MANCHESTER: White, £38. GLASGOW: White crystals, £30; brown, £1 per ton less.

LEAD NITRATE.—£27 per ton for 1-ton lots.

LEAD, RED.—£34 15s. 0d. 10 cwt. to 1 ton, less 2½% carriage paid. GLASGOW: £31 per ton, less 2½% carriage paid for 2-ton lots.

LITHARGE.—GLASGOW: Ground, £31 per ton, less 2½%, carriage paid for 2-ton lots.

MAGNESITE.—Calcined, in bags, ex works, about £8 per ton.

MAGNESIUM CHLORIDE.—Solid (ex wharf) £5 10s. per ton. GLASGOW: £7 5s. per ton.

MAGNESIUM SULPHATE.—Commercial, £5 10s. per ton, ex wharf.

MERCURY PRODUCTS.—Ammoniated B.P. (white precip.), lump, 6s. 5d. per lb.; powder B.P., 6s. 7d.; bichloride B.P. (corros. sub.), 5s. 8d.; powder B.P., 5s. 1d.; chloride B.P. (calomel), 6s. 2d.; red oxide cryst. (red precip.), 7s. 6d.; levig, 6s. 9d.; yellow oxide B.P. 6s. 10d.; persulphate white B.P.C., 6s. 7d.; sulphide black (hyd. sulph. cum. sulph. 50%), 6s. 6d. For quantities under 112 lb., 1d. extra; under 28 lb., 5d. extra.

METHYLATED SPIRIT.—61 O.P. industrial, 1s. 5d. to 2s. per gal.; pyridinised industrial, 1s. 7d. to 2s. 2d.; mineralised, 2s. 6d. to 3s. Spirit 64 O.P. is 1d. more in all cases and the range of prices is according to quantities.

NITRIC ACID.—Spot, £25 to £30 per ton according to strength, quantity and destination.

OXALIC ACID.—£48 15s. to £57 10s. per ton, according to packages and position. MANCHESTER: £49 to £55 per ton ex store. GLASGOW: £2 9s. per cwt. in casks.

PARAFFIN WAX.—GLASGOW: 3¾d. per lb.

POTASH, CAUSTIC.—Solid, £33 5s. to £38 per ton according to quantity, ex store; broken, £40 per ton. MANCHESTER: £47.

POTASSIUM CHLORATE.—£36 7s. 6d. per ton. MANCHESTER: £37 per ton. GLASGOW: 4¼d. per lb.

POTASSIUM DICHROMATE.—5¼d. per lb carriage paid. GLASGOW: 5¼d. per lb., net, carriage paid.

POTASSIUM CHROMATE.—9d. per lb. d/d U.K.

POTASSIUM IODIDE.—B.P. 7s. per lb. in 7 lb. lots.

POTASSIUM NITRATE.—Small granular crystals, £24 to £27 per ton ex store, according to quantity.

POTASSIUM PERMANGANATE.—LONDON: 9¼d to 10½d. per lb. MANCHESTER: B.P. 9½d. to 11¼d. GLASGOW: B.P. Crystals, 10¼d.

POTASSIUM PRUSSIATE.—7d. to 8d. per lb. MANCHESTER: Yellow, 6¾d.

PRUSSIATE OF POTASH CRYSTALS.—In casks, 6¾d. per lb. net, ex store.

SALT CAKE.—Unground, spot, £3 8s. 6d. per ton.

SODA ASH.—Light 98/100%, £5 17s. 6d. per ton f.o.r. in bags.

SODA, CAUSTIC.—Solid, 76/77° spot, £13 10s. per ton d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE.—£19-£20 per ton carriage paid North. GLASGOW: £18 10s. per ton net ex store.

SODIUM BICARBONATE.—Refined spot, £10 10s. per ton d/d station in bags in 1-ton lots. MANCHESTER: £10 15s. GLASGOW: £13 5s. per ton in 1 cwt. kegs, £11 5s. per ton in 2-cwt. bags.

SODIUM BISULPHITE POWDER.—60/62%, £12 10s. to £14 per ton d/d in 2-ton lots for home trade.

SODIUM CARBONATE MONOHYDRATE.—£20 per ton d/d in minimum ton lots in 2 cwt. free bags.
SODIUM CHLORATE.—£27 10s. to £32 per ton. GLASGOW: £1 11s. per cwt., minimum 3 cwt. lots.
SODIUM DICHROMATE.—Crystals cake and powder 4¼d. per lb. net d/d U.K. with rebates for contracts. GLASGOW: 4¼d. per lb., carriage paid.
SODIUM CHROMATE.—5d. per lb. d/d U.K.
SODIUM HYPOSULPHITE.—Pea crystals, £15 15s. per ton for 2-ton lots; commercial, £11 5s. per ton. MANCHESTER: Commercial, £11; photographic, £15 10s.
SODIUM METASILICATE.—£14 5s. per ton, d/d U.K. in cwt. bags.
SODIUM NITRATE.—Refined, £8 5s. per ton for 6-ton lots d/d. GLASGOW: £1 12s. per cwt. in 1-cwt. kegs, net, ex store.
SODIUM NITRITE.—£18 5s. per ton for ton lots.
SODIUM PERBORATE.—10%, £4 per cwt. d/d in 1-cwt. drums.
SODIUM PHOSPHATE.—Di-sodium, £12 per ton delivered for ton lots. Tri-sodium, £16 10s. per ton delivered per ton lots.
SODIUM PRUSSIATE.—4d. per lb. for ton lots. MANCHESTER: 4¼d. to 5d. GLASGOW: 4d.
SODIUM SILICATE.—£8 2s. 6d. per ton.
SODIUM SULPHATE (GLAUBER SALTS).—£3 per ton d/d.
SODIUM SULPHATE (SALT CAKE).—Unground spot, £3 to £3 10s. per ton d/d station in bulk. MANCHESTER: £3 10s.
SODIUM SULPHIDE.—Solid 60/62%, Spot, £11 15s. per ton d/d in drums; crystals, 30/32%, £9 per ton d/d in casks. MANCHESTER: Concentrated solid, 60/62%, £11; commercial, £8 10s.
SODIUM SULPHITE.—Pea crystals, spot, £14 10s. per ton d/d station in kegs.
SULPHUR PRECIP.—B.P., £55 to £60 per ton according to quantity. Commercial, £50 to £55.
SULPHURIC ACID.—168° Tw., £4 11s. to £5 1s. per ton; 140° Tw., arsenic-free, £3 to £3 10s.; 140° Tw., arsenious, £2 10s.
TARTARIC ACID.— 1s. 1¼d. per lb. less 5%, carriage paid for lots of 5 cwt. and upwards. MANCHESTER: 1s. 1¼d. per lb. GLASGOW: 1s. 1¼d. per lb., 5%, ex store.
ZINC SULPHATE.—Tech., £11 10s. f.o.r., in 2-cwt. bags.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 7¾d. to 1s. 3d. per lb., according to quality. Crimson, 1s. 7½d. to 1s. 8½d. per lb.
ARSENIC SULPHIDE.—Yellow, 1s. 6d. to 1s. 8d. per lb.
CARBON DISULPHIDE.—£33 to £36 per ton, according to quantity, drums extra.
CARBON TETRACHLORIDE.—£44 to £49 per ton, according to quantity, drums extra.
CHROMIUM OXIDE.—Green, 1s. 3d. per lb.
INDIA-RUBBER SUBSTITUTES.—White, 4¼d. to 5d. per lb.; dark 3⅜d. to 4⅜d. per lb.
SULPHUR CHLORIDE.—6d. to 8d. per lb., according to quantity.
VEGETABLE BLACK.—£35 per ton upwards; 28/30%, £15 10s. 0d.; 60%, £29, delivered buyers' premises.
ZINC SULPHIDE.—£56 per ton ex works.
Plus 5% War Charge.

Nitrogen Fertilisers

AMMONIUM SULPHATE.—The following prices have been announced for neutral quality basis 20.6% nitrogen, in 6-ton lots delivered farmer's nearest station up to June 30, 1940; September, £7 5s.; October, £7 6s. 6d.; November, £7 8s.; December, £7 9s. 6d.; January, 1940; £7 11s., February £7 12s. 6d.; March/June, £7 14s.
CALCIUM CYANAMIDE.—The following prices are for delivery in 5-ton lots, carriage paid to any railway station in Great Britain up to June 30, 1940; September £8 2s. 6d.; October £8 3s. 9d.; November £8 5s.; December, £8 6s. 3d.; January, 1940, £8 7s. 6d.; February £8 8s. 9d.; March £8 10s.; April/June, £8 11s. 3d.
NITRO-CHALK.—£7 10s. 6d. per ton up to June 30, 1940.
SODIUM NITRATE.—£8 5s. per ton for delivery up to June 30, 1940.
CONCENTRATED COMPLETE FERTILISERS.—£11 4s. to £11 13s. per ton in 6-ton lots to farmer's nearest station.
AMMONIUM PHOSPHATE FERTILISERS.—£10 19s. 6d. to £14 16s. 6d. per ton in 6-ton lots to farmer's nearest station.

Coal Tar Products

BENZOL.—At works, crude, 9½d. to 10d. per gal.; standard motor, 1s. 3¼d. to 1s. 4d.; 90%, 1s. 4¼d. to 1s. 5d., pure 1s. 8¾d. to 1s. 9. MANCHESTER: Crude, 1s. 0¼d. to 1s. 0¾d. per gal.; pure, 1s. 8d. to 1s. 8½d. per gal.; motor grade 1s. 6½d.
CARBOLIC ACID.—Crystals, 8d. per lb.; Crude, 60's 1s. 7d. to 1s. 10d.; dehydrated, 1s. 9d. to 2s. per gal., according to specification; Pale, 99/100%, per lb. f.o.b. in drums; crude, 2s. 1d. per gal.
CREOSOTE.—Home trade, 3¾d. to 4d. per gal., f.o.r., makers' works; exports 6d. to 6¼d. per gal., according to grade. MANCHESTER: 3¾d. to 4¾d.
CRESYLIC ACID.—97/99%, 2s. 3d. to 2s. 6d.; 99/100%, 2s. 6d. to 2s. 9d. per gal., according to specification. MANCHESTER: Pale, 99/100%, 2s.
NAPHTHA.—Solvent, 90/160, 1s. 6d. to 1s. 7d. per gal.; solvent, 95/160%, 1s. 7d. to 1s. 8d., naked at works; heavy 90/190%, 1s. 1½d. to 1s. 3d. per gal., naked at works, according to quantity. MANCHESTER: 90/160%, 1s. 6d. to 1s. 7½d. per gal.
NAPTHALENE.—Crude, whizzed or hot pressed, £6 to £6 10s. per ton; purified crystals, £9 per ton in 2-cwt. bags. LONDON: Fire lighter quality, £3 to £4 10s. per ton. MANCHESTER: Refined, £11 to £12.
PITCH.—Medium, soft, 26s. per ton, f.o.b. MANCHESTER: 27s. 6d. f.o.b., East Coast.
PYRIDINE.—90/140%, 17s. 6d. per gal.; 90/160%, 15s.; 90/180%, 3s. to 4s. per gal. f.o.b. MANCHESTER: 13s. to 17s. per gallon.
TOLUOL.—90%, 2s. 1d. to 2s. 2d. per gal.; pure 2s. 6d. to 2s. 7d. MANCHESTER: Pure, 2s. 7d. per gallon, naked.
XYLOL.—Commercial, 2s. 3d. per gal.; pure, 2s. 5d. MANCHESTER: 2s. 5d. per gallon.

Wood Distillation Products

CALCIUM ACETATE.—Brown, £6 15s. to £9 5s. per ton; grey, £8 to £8 5s. MANCHESTER: Grey, £14.
METHYL ACETONE.—40.50%, £32 to £35 per ton.
WOOD CREOSOTE.—Unrefined, 6d. to 8d. per gal., according to boiling range.
WOOD NAPHTHA, MISCIBLE.— 2s. 8d. to 3s. per gal;. solvent, 3s. to 3s. 5d. per gal.
WOOD TAR.—£3 to £8 per ton, according to quality.

Intermediates and Dyes

ANILINE OIL.—Spot, 8d. per lb., drums extra, d/d buyer's works.
ANILINE SALTS.—Spot, 8d. per lb. d/d buyer's works, casks free.
BENZALDEHYDE.—1s. 10d. per lb., for cwt. lots, net packages.
BENZIDINE, HCl.—2s. 7½d. per lb., 100% as base, in casks.
BENZOIC ACID, 1914 B.P. (ex toluol).—1s. 11d. per lb. d/d buyer's works.
m-CRESOL 98/100%.—1s. 8d. to 1s. 9d. per lb. in ton lots.
o-CRESOL 30/31° C.—6½d. to 7½d. per lb. in 1-ton lots.
p-CRESOL 34/35° C.— 1s. 7d. to 1s. 8d per lb. in ton lots.
DICHLORANILINE.—2s. 1½d. to 2s 5½d. per lb.
DIMETHYLANILINE.—Spot, 1s. 7½d. per lb., package extra.
DINITROBENZENE.—7½d. per lb.
DINITROCHLORBENZENE, SOLID.—£79 5s. per ton.
DINITROTOLUENE.—48/50° C., 8½d. per lb.; 66/68° C., 11d.
DIPHENYLAMINE.—Spot, 2s. 3d. per lb.; d/d buyer's works.
GAMMA ACID, Spot, 4s. 4½d. per lb. 100%, d/d buyer's works.
H ACID.—Spot, 2s. 7d. per lb.; 100%, d/d buyer's works.
NAPHTHIONIC ACID.—1s. 10d. per lb.
β-NAPHTHOL.—£97 per ton; flake, £94 8s. per ton.
α-NAPHTHYLAMINE.—Lumps, 1s. 1d. per lb.
β-NAPHTHYLAMINE.—Spot, 3s. per lb.; d/d buyer's works.
NEVILLE AND WINTHER'S ACID.—Spot, 3s. 3½d. per lb. 100%.
o-NITRANILINE.—4s. 3½d. per lb.
m-NITRANILINE.—Spot, 2s. 10d. per lb. d/d buyer's works.
p-NITRANILINE.—Spot, 1s. 10d. to 1s. 11d. per lb. d/d buyer's works.
NITROBENZENE.—Spot, 4½d. to 5d. per lb., in 90-gal. drums, drums extra, 1-ton lots d/d buyer's works.
NITRONAPHTHALENE.—9½d. per lb.; P.G., 1s. 0½d. per lb.
SODIUM NAPHTHIONATE.—Spot, 1s. 11d. per lb.; 100% d/d buyer's works.
SULPHANILIC ACID.—Spot, 8¾d. per lb. 100%, d/d buyer's works.
o-TOLUIDINE.—10½d. per lb., in 8/10 cwt. drums, drums extra.
p-TOLUIDINE.—1s. 10½d. per lb., in casks.
m-XYLIDINE ACETATE.—4s. 3d. per lb., 100%.

Latest Oil Prices

LONDON, Sept. 20.—Demand for uncontrolled commodities was fairly constant at full rates, where arrivals of parcels were confirmed for distribution. OLIVE OIL, no sellers. Edible quoted at 89s. to 95s.; pharmaceutical, 80s. to 85s.; and technical, 5 per cent., 65s. per cwt., in barrels. CASTOR OIL firm, Bombay, firsts, in drums, Sept.-Oct. shipment, 35s. 6d. per cwt. ROSIN was nominal at 35s. per cwt., ex wharf; no grades specified. TURPENTINE was on offer at 80s. per cwt. American, spot, including tax, ex wharf, barrels and ex discount. PARAFFIN SCALE nominally quoted at 24s. per cwt.,(122/124 per cent.) spot. KERESENE.—Rumanian, spot, white, 5d. per gallon, bulk (duty paid), ex installation (500/1,000 gallon lots).

HULL.—Prices, as fixed provisionally, continued to operate. LINSEED OIL, £29 15s.; cottonseed, Egyptian, crude, £17; edible refined and technical, £19 10s.; deodorised, £21 1s. 8d. PALM KERNEL OIL, crude, £17. GROUNDNUT OIL, extracted, £23 10s.; deodorised, £27 6s. 8d. SOYA OIL, crude, £23 5s.; deodorised, £28 16s. 8d. RAPE OIL, best brown, £30 7s. 6d.; refined, £32 12s. 6d., per ton. CASTOR OIL, firsts, 33s. 6d. per cwt., ex-mill. TURPENTINE, 75s. per cwt.

Commercial Intelligence

The following are taken from printed reports. but we cannot be responsible for errors that may occur.

Receivership

S. D. MOULDINGS, LTD. (323,369), engineers, founders, moulders, etc., 46-50 Knightland Road, E.5. Frank H. Taylor, of 208b Mitcham Road, S.W.17, has been appointed Receiver. September 4.

Satisfactions

CASCELLOID, LTD., Leicester. (S., 23/9/39.) Satisfactions September 8, £1,800, reg. Oct. 28, 1927, and £800 reg. January 19, 1931.

CONTINENTAL LABORATORIES, LTD., London, S.W. (S., 23/9/39.) Satisfaction, September 14, of charge reg. November 28, 1929.

HORTON MANUFACTURING CO., LTD., Rickmansworth, liquid soap manufacturers. (S., 23/9/39.) Satisfaction September 13, of debs. reg. August 18, 1934, to the extent of £2,000.

PATRINGTON GAS CO., LTD., Hull. (S., 23/9/39.) Satisfaction September 14, of mortgage reg. January 1, 1927.

Companies Winding Up Voluntarily

DUNLOP RUBBER CO. (SOUTH AFRICA), LTD. (C.W.U.V., 23/9/39.) September 7 (members), J. H. Lord, St. James's House, St. James's Street, S.W.1, liquidator.

Receivers Ceasing to Act

ILLINGWORTH CARBONISATION CO., LTD., Manchester. (R.C.T.A., 23/9/39.) W. R. Carter. August 31.

Company News

The Ruberoid Co., Ltd., have declared an interim ordinary dividend of 3 per cent. less tax.

Pinchin Johnson & Co., Ltd., are reducing their interim dividend from 7½ per cent. to four per cent.

Canadian Celanese have declared a dividend of 25 cents per share on the common stock, payable September 30.

Imperial Chemical Industries, Ltd., have decided to pay an interim dividend of 3 per cent., less tax, on account of 1939. This rate is unchanged from 1938.

Cheshire United Salt have declared a final dividend of six per cent. on the ordinary shares, making ten per cent. for the year less tax (against 7½ per cent.).

William Briggs & Sons, Ltd., announce that dividends will be paid on September 30 on the 5½ per cent. "A" cumulative preference shares at the rate of 5½ per cent. per annum and on the 6 per cent. "B" cumulative preference shares at the rate of 6 per cent. per annum for the half-year to September 30, 1939.

The Staveley Coal & Iron Co., Ltd., report that net trading profits, after providing for management expenses and taxation, have risen from £506,119 to £587,928 for the year ended June 30 last.

Yorkshire Dyeing & Proofing Co. report that accounts for year ended June 30 show £1,117 (£6,509) brought in; add from reserve, £5,000 (nil), making £6,117, less net loss £4,536 (£5,392), leaving forward £1,581.

Cooper, McDougall & Robertson, Ltd., announce that owing to the outbreak of war and the inevitable disturbance of international finance, they have decided to conserve the resources of the company and not to pay an interim dividend on the ordinary shares, although during the current financial year the company's turnover has improved. The half-yearly dividend on the 7 per cent. cumulative preference shares will be paid as usual on September 30.

New Companies Registered

H. J. Dukes, Ltd. 356,355.—Private company. Capital £100 in 100 shares of £1 each. To acquire the business of wholesale, retail and manufacturing chemists and druggists carried on by Harry and Thomas Dukes at 39 Market Square, St. Neots, Hunts., as "H. J. Dukes and Sons." Directors: Harry Dukes, 39 Market Square, St. Neots, Hunts.; Thomas Dukes. Solicitors: Wilkinson and Butler, St. Neots, Hunts.

Shield Alloys, Ltd. (356,432).—Private company. Capital: £5,000 in 5,000 shares of £1 each. To carry on the business of dealers in metals and metallurgical products, metallic and other ores and minerals and chemicals of all descriptions, etc. Subscribers: Jas. A. S. Hamilton, Robt. H. R. McGill and Anthony A. Martineau, of 18 Austin Friars, E.C.2. The first directors are to be appointed by the subscribers. Solicitors: Slaughter & May, 18 Austin Friars, E.C.2.

Frome Chemical Company, Ltd. 356,167.—Private company. Registered August 22. Capital £1,500 in 1,000 5 per cent. non-cum. pref. and 500 ordinary shares of £1 each. To carry on business as manufacturers and importers of and dealers in chemical, artificial and other fertilisers and manures, chemicals, salts, acids, etc. Directors: Geo. Grant, "Gamrie," Cherry Grove, Sketty, Swansea; John P. Merrifield; Mrs. Evelyn L. Merrifield. Registered office: South Parade, Frome, Somerset.

Chemical Trade Inquiries

The following trade inquiries are abstracted from the "Board of Trade Journal." Names and addresses may be obtained from the Department of Overseas Trade (Development and Intelligence), 35 Old Queen Street, London, S.W.1 (quote reference number).

British India.—The Director-General, India Store Department, Belvedere Road, Lambeth, London, S.E.1, invites tenders for 120 tons camouflage and protective paints and distempers. Tenders due September 26, 1939. Forms of tender obtainable from the above at a fee (which will not be returned) of 5s. for each schedule.

Chemical and Allied Stocks and Shares

FOLLOWING the rally shown in most sections of the Stock Exchange last week, share values have reacted sharply, sentiment having been affected by the widespread tendency to await the supplementary Budget, and by the belief that some time may have to elapse before the influence of war regulations and restrictions can be fully gauged. The new cash basis of dealings has the effect of limiting business in the stock and share markets very considerably, with the result that moderate buying or selling still tends to have a marked influence on movements in share values, but this week the decline in prices was attributed more to the absence of demand than to selling, which was in fact again reported to be small.

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Owing to the very inactive markets, business in numerous securities was largely a matter of negotiation and there was a fairly wide margin between actual buying and selling prices. This, of course, applies more to the smaller-priced and less widely held shares. Imperial Chemical moved down sharply to 26s. 3d. in sympathy with the general market trend, and reactions were also shown by British Oxygen, Turner and Newall, and most other shares with a large following, including Distillers and Lever and Unilever. United Molasses at 25s. were only slightly lower, while Borax Consolidated at 23s. 9d. were one of the few shares to show improvement on balance, sentiment in regard to the last-named company being influenced by the view that, owing to its important business in America, it should benefit to some extent from the improving trade conditions in the U.S.A. Quotations for Fison Packard and B. Laporte at 39s. 9d. and 57s. 6d. were quite well maintained, but were not tested adequately by business this week. Pinchin Johnson at 19s. 7½d. and International Paint at 75s. were lower, but are now "ex" the interim dividends. Goodlass Wall at 9s. were slightly better, but Wall Paper deferred went back to 20s. Valor ordinary shares attracted some attention, and were maintained at 19s. 4½d. Both Reckitt and Sons and Cerebos declined sharply as a result of the surrounding market trend, but very little selling was reported. Imperial Smelting were higher at 10s. 3d., compared with 9s. 9d. having remained under the influence of the good impression created by the payment recently announced in respect of dividend arrears on the company's preference shares.

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Textile and kindred shares continued to attract some attention, but Courtaulds and British Celanese reacted following last week's rise, although Bleachers and Bradford Dyers held most of their recent improvement. British Oil and Cake Mills preferred ordinary were lowered to 35s. 7½d. due partly to the deduction of the dividend. Iron and steel shares were reactionary, as were most shares of companies which benefit directly from armament and allied work, there being general expectations that the supplementary Budget will bring a further considerable limitation of excess profits. Associated Cement and other cement shares reflected the general market tendency, while in other directions Boots Drug and most securities of companies associated with the retail and kindred trades were lower, partly owing to the knowledge that the compulsory War Risk Insurance scheme will make for lower profits. British Glues were quoted at 4s. 4½d. and William Blythe around 5s. 9d. Oil shares were mostly reactionary and Anglo-Iranian were 66s. 3d. compared with 70s. a week ago, but "Shell" at 88s. 1½d. and Trinidad Leaseholds at 88s. 9d. were little changed on balance.